

## **Historic, Archive Document**

**Do not assume content reflects current scientific knowledge, policies, or practices.**



# GLEANINGS IN BEE CULTURE

## Ventilation of the Hive.

It has been proved by careful experiments that pure air is necessary not only for the respiration of the mature bees, but that without it neither the eggs can be hatched nor the larvæ developed. A fine netting of air-vessels covers the eggs; and the cells of the larvæ are sealed over with a covering which is full of air-holes. In winter, bees, if kept in the dark, and neither too warm nor too cold, are almost dormant, and seem to require but a small allowance of air; but, even under such circumstances, they can not live entirely without air; and if they are excited by being exposed to atmospheric changes, or by being disturbed, a very loud humming may be heard in the interior of their hives, and they need quite as much air as in warm weather.

—Langstroth.

THE A. I. ROOT CO.  
MEDINA, OHIO.

Western Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

# North Texas Beekeepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

**Texas  
Seed and Floral Co.  
Dallas, Tex.**

# SPRINGFIELD MISSOURI

We carry a large and complete stock of  
**The ROOT'S 1906  
BEE-SUPPLIES**

All orders filled same day as received, thus insuring for our customers quick service, Springfield freight rates,

## FACTORY PRICES

Send for seed catalog, bulb and plant catalog, Cyphers incubator catalog, The A. I. Root Co. bee-supply catalog

**SPRINGFIELD SEED CO.  
Springfield, Mo.**

# MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

~~~~~  
Call or Address

**Udo Toepperwein - San Antonio, Texas**  
1322 South Flores Street

**C. H. W. Weber,  
Headquarters for  
Bee - Supplies.**

**Distributor of Root's Goods Exclusive-  
ly, at Root's Factory Prices.**

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

# Four Per Cent Discount

For Cash Orders Received in February

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

# QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

# C. H. W. WEBER.

**Office and Salesroom, 2146-2148 Central Ave.  
Warehouse, Freeman and Central Avenue.**

## **Cincinnati, - Ohio.**

## Honey Market.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsouled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface souled, or the entire surface slightly souled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface souled, or the entire surface slightly souled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

**NEW YORK.**—The demand is fairly good for better grades of white comb honey; and while the nearby crop is fairly well cleaned up new arrivals are now coming in from Cuba; besides, several cars have been shipped on from California. We quote fancy white at 15; No. 1 at 13 to 14; No. 2 at 12; amber at 11, buckwheat at 10 to 11. Extracted is in fairly good demand, especially California, of which there is abundant supply. We quote white sage, 6½ to 7½; light amber at 6 to 7, according to quantity; buckwheat at 6c per lb.; Southern, at 50 to 60c per gallon, according to quality. Beeswax, steady at 29 to 31c. **HILDRETH & SEGELENKEN**, 265-267 Greenwich St., New York.

Jan. 19.

265-267 Greenwich St., New York.

**CINCINNATI.**—The honey market is quiet. We do not offer white-clover extracted honey, on account of its scarcity; instead, we offer a fancy water-white honey, equal to if not better than the white clover, in 60-lb. cans, two in a crate, at 7½ to 8½c. Fancy light amber, 7½c. Other grades of amber in barrels at 5½ to 6½c, according to the quality. Fancy comb honey, 16½c.

(Bee-keepers, please observe that the above are our selling prices of honey, not what we are paying.)

Beeswax is wanted, and we are paying 30c per lb. delivered here for choice bright-yellow grade.

**THE FRED W. MUTH CO.**,  
51 Walnut St., Cincinnati, O.

Jan. 20.

521 Monroe St. Toledo, Ohio.

**TOLEDO.**—The market on comb honey at this writing remains quiet as usual at this time of year. We quote fancy white comb honey at 14 to 14½c; No. 1, 13½ to 14. Extracted, white clover, in barrels, brings 6 to 6½c; cans, 6½ to 7½, with very little demand for amber honey. Beeswax remains firm at 27 to 30c.

**GRIGGS BROTHERS**,

Jan. 19.

521 Monroe St. Toledo, Ohio.

**KANSAS CITY.**—The demand for honey is very light, fancy white selling at \$3.00 per case, and amber at \$2.75. Extracted, 5½ and 6. Beeswax, 25c.

**C. C. CLEMONS & CO.**,  
Kansas City, Mo.

Jan. 20.

## BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

**MUTH SPECIAL DOVE TAIL HIVES.** have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

**THE FRED. W. MUTH CO.,**

51 WALNUT ST.,

CINCINNATI, OHIO.

**SCHENECTADY.**—There is improving demand for comb honey, but extracted remains very quiet. The stock on hand of both is quite limited. We quote white clover, fancy, 14 to 15c; No. 1, 13 to 14; No. 2, 12 to 12½; buckwheat, 11 to 12. Extracted, light, 6 to 7c; dark, 5½ to 6. Beeswax, 28 to 30c.

Jan. 20. **CHAS. McCULLOCH**, Schenectady, N. Y.

**BOSTON.**—New comb honey is cleaning up rapidly, leaving still on hand quite a large stock carried over from last year, which goes very hard, and prices are nominal. Fancy, new, 16c; No. 1, 15c; No. 2, practically out of the market. Extracted, white, 8; light amber, 7 to 7½. **BLAKE, SCOTT & LEE**,

Jan. 26. 31-33 Commercial St., Boston, Mass.

**ST. LOUIS.**—Our honey market is unchanged since our last. The demand for extracted honey is only for the higher grades. The lower grades are more or less neglected, and price on same is nominal. We quote: Fancy white comb honey, 13 to 14c; No. 1, 12 to 13; amber, 11 to 12. Extracted, California, light amber, 6 to 6½; Southern, in barrels, 4½ to 4¾; in cans, 5 to 5½. Beeswax, 29c per lb. **R. HARTMANN & CO.**,

Jan. 19. 14 So. Second St., St. Louis, Mo.

**CINCINNATI.**—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep prices high. We quote as follows: Fancy water white and No. 1 white clover, 14 to 16c; No. 2, 12 to 14. Extracted seems to be more plentiful, and we quote same in barrels at 5½ to 5½c; in cans, ½c more; white clover, 7 to 8c. Beeswax, 28 to 30c. **C. H. W. WEBER**,

Jan. 23. 2146-8 Central Ave., Cincinnati, O.

**TORONTO.**—No change in honey market; demand not very brisk; lots of honey to get at a reasonable price; retail prices remain about the same as last report. Bees have been flying for two days as thick as they do in summer. **E. GRAINGER & CO.**,

Jan. 23. Toronto, Can.

**ATLANTA.**—Honey market rather quiet. Light receipts and few sales. We quote as follows: fancy white comb, 12½ to 14; A No. 1, 11 to 12½; No. 1, 10. Beeswax, 28 to 30c. **JUDSON HEARD & CO.**,

Jan. 20. Atlanta, Ga.

**CHICAGO.**—The market is steady, with about the usual demand. The prices range from 14 to 15 for best grades of white comb honey. There is not an active demand for off grades, which usually sell at 1 to 3 per lb. less. For extracted a steady demand exists for the best grades at 6½ to 7; but for sour or off flavors there is practically no sale. Beeswax brings 30c.

**R. A. BURNETT & CO.**,  
Jan. 18. 199 South Water St., Chicago, Ill.

**FOR SALE.**—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

**HILDRETH & SEGELENKEN**, 82 Murray St., N. Y. City.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—One ton No. 1 white comb honey, in no-drip cases, 24 sections to case, at 14c per lb. Water-white extracted 8½c; amber, 7c, in 60-lb. cans, two in a case. Light-weight white comb at 13c.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

WANTED.—Fancy clover extracted honey. Send sample and quote lowest price.

J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Three barrels of white extracted honey, candied hard; 7½c cash. Send for sample.

H. C. MILLS, 505 Emerson Ave., Syracuse, N. Y.

FOR SALE.—Fine alfalfa honey in 60-lb. cans. Send for sample and prices.

DADANT & SONS, Hamilton, Ills.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—I will pay spot cash for one to ten tons of water-white or amber extracted honey at railroad station.

C. W. DAYTON, Florence, Cal.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELEN, 265-267 Greenwich St., New York.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT, 199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey; and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT Co., Medina, Ohio.

**Chas. Israel & Brothers**  
486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in  
Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

A Remarkably Fair Furnace Offer.

The Schaefer Furnace Co., Youngstown, O., ship heaters for \$10.00 down, and no profit until user is satisfied. Particulars free, if this paper is named.

FOR SALE.—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

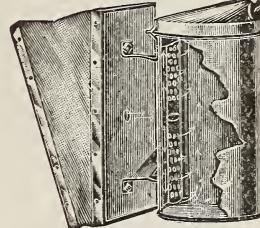
The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

**A COLD MEDAL**

at the World's Fair

St. Louis, 1904.



CLEANEST,  
COOLEST,  
STRONGEST,  
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

*Guarantee: Simplicity, quality, efficiency, durability.*

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

**F. DANZENBAKER, - MEDINA, OHIO.**

# Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

**The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

# Gleanings in Bee Culture.

## Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly. Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

**TERMS---\$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, In Advance.**

**Postage is Prepaid** by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

**Change of Address.**—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

**Discontinuances.**—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

**How to Remit.**—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

**Agents.**—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

### Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

**Paris, France.** E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5 1/4 fr.*

**Kingston, Jamaica.** HOOPER BROS. 20 Orange St. *Per year, postpaid, 5/6.*

**Goodna, Queensland.** H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

**Dunedin, New Zealand.** ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

**THE A. I. ROOT CO., Medina, Ohio, Publishers.**

Find enclosed ..... for which please send me Gleanings in Bee Culture ..... months, and ..... as per offer ..... Please continue sending Gleanings until otherwise ordered.

NAME .....

POSTOFFICE.....

COUNTY.....

STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ( )

# LANTERN SLIDES.

The following list of slides is published in answer to numerous requests from subscribers. We can rent them for lectures, etc., at 5 cts. each for the first five days; after five days, 1 ct. each extra per day. Of most of them we can sell duplicates at 50 cts. each. Slides are standard American size,  $3\frac{1}{4} \times 4$ , except the few English series which are  $3\frac{1}{4} \times 3\frac{1}{4}$ . In renting or selling we select any that may be wanted. Mention the numbers only when ordering. Lanterns rented. Write for terms.

**The A. I. Root Company, Medina, O.**

## PORTRAITS.

- 1 E. T. Abbott.
- 2 Thos. Wm. Cowan.
- 3 A. J. Cook.
- 4 C. P. Dadant.
- 5 D. M. Edwards.
- 6 D. A. Jones.
- 7 F. A. Gemmell.
- 8 J. E. Hetherington.
- 9 P. H. Elwood.
- 10 Geo. E. Hilton.
- 11 A. I. Root.
- 12 L. C. Root.
- 13 J. H. Martin.
- 14 N. E. France.
- 15 Eugene Secor.
- 16 C. H. W. Weber.
- 17 A. E. Manum.
- 18 George W. York.
- 19 J. H. Hoffmann.
- 20 W. A. Selser and family.
- 21 Dr. C. C. Miller.
- 22 W. Z. Hutchinson.
- 23 Wm. Rohrig.
- 24 Udo Toepperwein.
- 25 Louis Scholl.\*
- 26 Louis Scholl.
- 27 J. H. Martin (Rambler).
- 28 M. H. Mendleson.
- 29 J. F. McIntyre.
- 30 L. L. Langstroth.
- 31 L. L. Langstroth, second view.
- 32 R. L. Taylor.
- 33 E. B. Weed.
- 34 E. Whitcomb.
- 35 Wisconsin Bee-keepers' Assoc'n.
- 36 Frank McNay.
- 37 M. H. Mendleson and his honey.
- 37½ E. R. Root and C. P. Dadant.
- 38 Wooster teachers.
- 38½ J. W. Johnson.\*
- 39 J. W. Johnson.

## APIARIES.

- 51 T. F. Bingham's apiary.
- 52 J. F. McIntyre's apiary.
- 53 Louis Scholl's apiary.
- 54 R. L. Taylor's apiary.
- 55 M. H. Mendleson's apiary.
- 56 J. M. Jenkins' apiary.
- 57 Hansen's Sweetwater apiary.
- 58 M. H. Hunt's apiary.
- 59 W. Z. Hutchinson's apiary.
- 60 Wm. Rohrig's apiary.
- 61 P. H. Elwood's apiary.
- 62 France's apiary.
- 63 J. M. Jenkins' out-apiary.
- 64 Harry Lathrop's apiary.
- 65 B. Taylor's house-apiaries.
- 66 Harvey Feathers' apiary.
- 67 G. W. Wilson's apiary.
- 68 N. E. France's apiary.
- 69 M. H. Mendleson's home apiary.
- 70 G. W. Drinkwine's apiary.
- 71 Root's New York apiary.
- 72 Root's Jenkintown apiary.
- 73 Detroit City Bee Yard.
- 74 Hanselman's Wisconsin Apiary.

## HONEY-PLANTS.

- 100 Alfalfa in blossom.
- 101 Clover-blos'ms, red, white, alsike.
- 102 Button-sage bush.
- 103 Button-sage bush, second view.
- 104 White sage.
- 105 Black sage.
- 106 Carpet grass.
- 107 Mesquite.
- 108 Mesquite leaf.
- 109 Catclaw leaf.
- 109½ Catclaw in blossom.
- 110 Marigold.
- 111 Hard maple.
- 112 Apple-blossom.
- 113 Willow-herb.

\* Colored plates.

## 113½ Sweet clover.

## 114 Buckwheat.

## 115 Two cacti.

## 116 Cacti, second view.

## BEES AND BEE ANATOMY.

## 150 Sting.

## 151 Apis.

## 152 Worker and drone.

## 153 Worker magnified.

## 154 Upper view of worker.

## 155 Queen, worker, drone, and comb.

## 156 Legs.

## 157 Two legs.

## 158 Foot.

## 159 Three legs.

## 160 Eye.

## 161 Sectional view of eye.

## 162 Magnified piece of capping.

## 163 Sting and poison-sac.

## 164 Magnified point of sting.

## 165 Head of worker.

## 166 Bee-moth.

## 167 Comb, drone and worker.

## 167½ Wing of bee showing hooks.

## BEE-IMPLEMENT.

## 200 Bingham smoker.

## 201 Entrance-guard.

## 202 Clipping queen with knife.

## 203 Corneil smoker showing parts.

## 204 Cowan extractor No. 15.

## 205 Cowan extractor showing parts.

## 206 Bee veil.

## 207 Hoffmann frame.

## 208 Benton queen-mailing cage.

## 209 Bee-veil No. 2.

## 210 Queen-clipping device.

## 211 German wax-press.

## 212 Holmes bee-h't.

## 213 Danzenbaker Frame.

## 214 Honey-board No. 9.

## 215 German wax-press show'g parts.

## 216 Porter bee-escape show'g parts.

## 217 Clark smoker.

## 218 Corneil smoker, three sizes.

## 219 Sample perforated zinc.

## 220 Entrance-guard, Alley trap.

## 221 One-frame obs. hive with super.

## 222 Same without super.

## 223 Quinby frame.

## FACTORY VIEWS.

## 250 Root Co.'s printing-office.

## 251 Leahy Mfg. Co.

## 252 Falconer Mfg. Co.

## 253 Another view of Leahy Mfg. Co.

## 254 Plant of Marshfield Mfg. Co.

## 255 Plant of Falconer Mfg. Co.

## 256 Factory of Weiss.

## 257 Factory of Gus Dittmer.

## 258 Factory of Page & Lyon.

## 259 Office and warehouse, Page & L.

## 260 Inter-state factory.

## 261 Factory of Forncrook.

## 262 Factory of Schmidt & Co.

## 263 Factory of Wm. Bamber.

## 264 Root apiary from roof of factory.

## 265 Unknow view of factory interior.

## 266 Root Co. picnic train in 1899.

## HIVES.

## 300 Root Dove'd hive, 8 fr., 1-story.

## 301 Root Dove'd hive, AE64M / 10.

## 302 Root Dove'd hive, AE64P / 8.

## 303 Root Dove'd hive, AE66 / 8.

## 304 Root Dove'd hive, AE64P / 8.

## 305 Root Dove'd super, P / 8.

## 306 Danzenbaker super.

## 307 Root's Observatory hive open.

## 308 Root's Observatory hive closed.

## MANIPULATING HIVES.

## 350 Wardell manipulating a hive.

## 351 Unknown man handling a hive.

## 352 Manipulating a hive.

## 353 Handling frames in groups.

## 354 Manipulating hives, colored.

## 355 Catching a queen to cage.

## COMB.

## 356 Bees on comb.

## 357 Frame of queen-cells.

## 358 Specimen of pickled brood.

## 359 Frame of queen-cells building.

## 360 Another frame of the above.

## 361 Photograph of foundation.

## 362 Fully built brood-comb.

## ENGLISH SERIES.

## 363 Man manipulating hive.

## 364 Showing super.

## 365 Fastening in foundation.

## 366 Opening a hive.

## 367 Taking out frames.

## 368 Examining a frame.

## 369 Folding sections.

## 370 Folding sections, second view.

## 371 Drafting a swarm.

## ALFALFA.

## 400 Stacking alfalfa.

## 401 Stacks of alfalfa.

## 402 Cutting wheat in California.

## 403 Raking alfalfa.

## 404 Horse and carriage.

## 405 Railroad station.

## 406 Mowing alfalfa.

## COMIC.

## 420 Ouach, comic, two views.

## 421 He laughs best who laughs last.

## 422 When I get my eyes full of smoke.

## 423 Go vay, you bee.

## 424 After absconding swarm, col'd.

## 425 After absc'g swarm, uncolored.

## HONEY.

## 450 Honey in Aikin sacks.

## 450½ Candied honey in bags.

## 451 Proof of the pudding.

## 452 Sections, plain and beeway.

## 453 Cutting candied honey.

## UNCLASSIFIED VIEWS.

## 500 Bottling honey.

## 501 Wardell measuring bee tongues.

## 502 Hetherington's sword.

## 503 Specimen of foul brood.

## 504 Wardell grafting queen-cells.

## 506 Bee-house, old foreign print.

## 507 Hetherington apiary, bee-clamps.

## 509 Honey exhibit.

## 510 Wagon for moving bees.

## 511 Honey-bleaching house.

## 512 Wilkins sisters' home.

## 513 S. W. Ohio bee-keepers' adver't.

## 514 Letter design in comb honey.

## 515 In Sweet Springtime.

## 517 Irrigation scene—two views.

## 518 Selser's honey-wagon, rear.

## 519 Selser's wagon, side, two views.

## 520 Tanks for storing honey.

## 521 Selling honey popcorn crisps.

## 522 Blighted pear-orchard, two pl's.

## 523 New home of Wilkins sisters.

## 524 California home, unknown.

## 525 Capt. Hetherington's home.

## 526 Railroad scene.

## 527 Outside bee-cellar.

## 528 Francis quadruple hive.

## 529 Orchard.

## 530 Cowan and France.

## 531 Cheshire, Hooker, Cowan.

## 532 Back's fair exhibit.

## 533 Swarm on boy's hat.

## 534 Moving bees.

## FOREIGN APIARIES.

## 550 Mexican bee-keeping.

## 551 Algerian bee-keeping.

## BEE-KEEPING FOR WOMEN.

## 600 Bee-keeping for women.

## 601 Woman hiving bees.

## 602 Swarm on woman's hat.

## 603 Girl hiving bees.

## CONTENTS OF THIS NUMBER.

|                                                       |     |                                                    |     |
|-------------------------------------------------------|-----|----------------------------------------------------|-----|
| MARKET QUOTATIONS .....                               | 130 | Depredations of Ants or Bee-paralysis .....        | 149 |
| STRAY STRAWS.....                                     | 139 | Mr. Poppleton's Reply to Same .....                | 149 |
| EDITORIAL .....                                       | 141 | Buying Bees .....                                  | 150 |
| Battle between Nest of Ants and Colony of Bees. ....  | 141 | Alexander and His Critics .....                    | 151 |
| Remarkable Weather in January in Parts of U. S. ....  | 141 | Third Prize Photo of a Swarm of Bees .....         | 155 |
| Experiments at Medina in Weighing up Stores.....      | 141 | Educational Laboratory.....                        | 156 |
| Experiments in Ventilating Our Shop Bee-cellars. .... | 141 | Are Sections Detrimental to the Honey Market. .... | 157 |
| High Lights of the Chicago Convention.....            | 142 | Herman Holmes.....                                 | 159 |
| Advanced Bee Culture—New Revision .....               | 143 | NOTES OF TRAVEL .....                              | 160 |
| CONVERSATIONS WITH DOOLITTLE .....                    | 145 | OUR HOMES.....                                     | 161 |
| GENERAL CORRESPONDENCE .....                          | 146 | SPECIAL NOTICES.....                               | 183 |
| Honey-strainer inside the Extractor-can.....          | 146 | CONVENTION NOTICES.....                            | 183 |

## INDEX TO ADVERTISEMENTS.

|                                      |            |                                      |          |
|--------------------------------------|------------|--------------------------------------|----------|
| Banking by Mail.                     |            |                                      |          |
| Savings Dep. Bank Co. ....           | 185        | Coiled Spring Fence Co. ....         | 167-184  |
| Bee Books.                           |            | Kitselman Bros. ....                 | 167      |
| W. Z. Hutchinson ....                | 185        | Page Woven Wire Fence Co. ....       | 167      |
| Bee Smokers.                         |            | Honey-buyers.                        |          |
| T. F. Bingham. ....                  | 180        | Chas. Israel & Bro. ....             | 181      |
| F. Danzenbaker. ....                 | 181        | See page .....                       | 181      |
| Bee Supplies.                        |            | Honey for Sale.                      |          |
| Bee and Honey Co. ....               | 184        | Fred W. Muth Co. ....                | 130      |
| J. H. M. Cook. ....                  | 179        | See pages.....                       | 130, 181 |
| D. Cooley. ....                      | 179        | Incubators.                          |          |
| W. T. Falconer Mfg. Co., Back Cover  |            | American Incubator Co. ....          | 174      |
| Geo. E. Hilton. ....                 | 180        | Banta-Bender Mfg. Co. ....           | 163      |
| M. H. Hunt & Son. ....               | 178        | Buckeye Incubator Co. ....           | 163      |
| Krechmer Mfg. Co. ....               | 180        | Cycle Hatcher Co. ....               | 163      |
| G. B. Lewis Co. ....                 | 188        | Chas. A. Cyphers. ....               | 173      |
| Marshfield Mfg. Co. ....             | 180        | M. M. Johnson Co. ....               | 163      |
| Fred W. Muth Co. ....                | 130        | J. W. Miller Co. ....                | 164      |
| Walter S. Pouder. ....               | 176        | Prairie State Inc. Co. ....          | 164      |
| Page & Lyon. ....                    | 177        | Racine Hatcher Co. ....              | 163      |
| W. H. Putnam. ....                   | 179        | Reliable Incubator Co. ....          | 163      |
| A. H. Reeves. ....                   | 179        | Geo. H. Stahl. ....                  | 163      |
| St. Croix Valley Hon. P. Ass'n. .... | 179        | Machinery.                           |          |
| The Root Co., Syracuse, N. Y. ....   | 186        | American Harrow Co. ....             | 166      |
| The Root Co., St. Paul, Minn. ....   | 181        | The Deming Co. ....                  | 169      |
| The Root Co. ....                    | 121        | Elkhart Carriage Mfg. Co. ....       | 169      |
| C. M. Scott & Co. ....               | 119        | Bateman Mfg. Co. ....                | 165      |
| St. Croix Valley H. P. Ass'n. ....   | 179        | Electric Wheel Co. ....              | 105      |
| W. D. Soper. ....                    | 188        | Lyons Engine Co. ....                | 168      |
| I. J. Stringham. ....                | 179        | Medina Concrete Co. ....             | 170      |
| White Mfg. Co. ....                  | 179        | Manson Campbell Co., Ltd. ....       | 165      |
| C. H. W. Weber. ....                 | 129        | F. E. Myers & Son. ....              | 169      |
| A. G. Woodman Co. ....               | 178        | Seneca Falls Mfg. Co. ....           | 169      |
| York Honey & Bee Supply Co. ....     | 177        | Stromberg-Carlson Tel. Mfg. Co. .... | 154      |
| Bees and Queens.                     |            | United Factories Co. ....            | 169      |
| A. Gomes Casseres. ....              | 184        | Miscellaneous.                       |          |
| D. E. Lyon, Ph. D. ....              | 184        | H. H. Aulfaether. ....               | 175      |
| H. M. Parker, Jr. ....               | 184        | Francis Bannerman. ....              | 164      |
| Robert B. McCain. ....               | 184        | F. W. Bird & Son. ....               | 166      |
| W. H. Laws. ....                     | 184        | Chas. H. Manley. ....                | 137      |
| W. T. Crawford. ....                 | 184        | Ohio Carriage Mfg. Co. ....          | 169, 175 |
| L. A. Lawmaster. ....                | 123        | A. L. Rice. ....                     | 167      |
| The Jennie Atchley Co. ....          | 184        | The A. I. Root Co. ....              | 133      |
| A. E. Titoff. ....                   | 180        | Schafer Furnace Co. ....             | 131      |
| Comb Foundation.                     |            | Seaboard Air Line R. R. ....         | 137      |
| Dadant & Son. ....                   | Back Cover | Poultry Supplies.                    |          |
| Gus Dittmer. ....                    | 177        | Berry Golden Rule Poultry Farm. .... | 174      |
| Fences.                              |            | G. E. Conkey & Co. ....              | 174      |
| Brown Fence & Wire Co. ....          | 167        | B. H. Greider. ....                  | 174      |
|                                      |            | F. W. Mann Co. ....                  | 164      |
|                                      |            | Wants and Exchanges.                 |          |
|                                      |            | See page. ....                       | 182      |

## COOK BOOK FREE!

To each lady who will send 25 cents for one year's trial subscription to **THE HOME INSTRUCTOR**, Quincy, Illinois, we will send free, postpaid, one copy of the **American Family Cook Book**. The Home Instructor is a Woman's Magazine from cover to cover and the only Magazine published that lists up-to-date **Dress Patterns at 5 cents each**. Good stories. Stamps taken. **Agents Wanted**.

# The Top Notch

Is what I at one time felt the Bee-keepers' Review had reached in 1905. There was a time when I honestly doubted if I would ever be able to get out a volume that would contain as much useful information. Correspondence that I have been able to secure in the last few weeks has dispelled all doubts—the information given by the Review in 1906 will surpass that of any former year.

Mr. R. F. Holtermann, of Brantford, Ont., Canada, secured 60,000 pounds of extracted honey from 300 colonies, and he is now preparing for the Review an article giving in detail his method of extracting. Getting the honey off the hives, the bees off the combs, uncapping, extracting, straining, and canning, will be considered. He has not hesitated to depart from established methods, and there are some happy surprises in store even for the old-timers.

Mr. L. A. Aspinwall, of Jackson, Mich., has, for about a dozen years, been using a non-swarming hive and system of management in the production of comb honey. Last year, from about 50 colonies he secured an average of 128 pounds to the colony, which might easily have been 150 pounds had it not been for some experiments that he was carrying out. His hive and methods will be illustrated and described in an early issue of the Review.

R. C. Aikin, of Loveland, Colo., has written an article on the control of increase when working for comb honey, and I consider it the best article he ever wrote. Not only does he tell how to manage to prevent swarming and get good results, but there is a vim, and a dash, and an inspiration about it that is worth reading for itself alone.

P. S.—Each new subscriber for 1906 will receive, free of charge, any back numbers of 1905 that may still be on hand. At present I can send a complete set excepting the January and April issues. March is getting pretty low. As long as they last, however, any numbers that are left will be sent free.

A. K. Ferris, of Madison, Wis., will illustrate and describe a twin baby nucleus which, by a simple change, that it seems strange that no one has thought of before, enables the queen-breeders to maintain these little nuclei permanently without renewing the bees—they can breed and maintain their numbers. M. A. Gill will tell how to make 100 per cent increase, get a good crop of comb honey, yet have no swarming. S. D. Chapman, Mancelona, Mich., sent an article criticising some of the proposed plans of the editor, and he did the work so graphically and so humorously that I laughed until the tears rolled down my cheeks—and there was a lot of good sense, too, in what he said. Frank Coverdale, of Maquoketa, Iowa, illustrates and describes a feeder that can be used on any hive for any purpose, yet it costs only five cents—the simplicity of it makes one exclaim, "Why didn't we think of it before?" E. D. Townsend has sent an article, and promised to send two or three more. But space fails me to tell of all the good things in store for the readers of the Review for 1906. In short, the man who is keeping bees to *make money* out of them can't afford *not* to send \$1.00 for the Review—it will come back to him many fold.

Then there is the new edition of *ADVANCED BEE CULTURE*, with its handsome engravings, and delicate, beautiful binding in three colors, making it an ornament for any parlor table. The contents are terse, concise, practical, and to the point, telling how to manage bees by the most advanced methods from the beginning of the season until they are snugged away for the winter. Price \$1.20, or, with the Review one year, for only \$2.00.

**W. Z. Hutchinson, Flint, Mich.**

## A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us.

## One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

## 4 PER CENT Interest,

compounded semi-annually, and will be secured semi-annually by assets of over . . . .

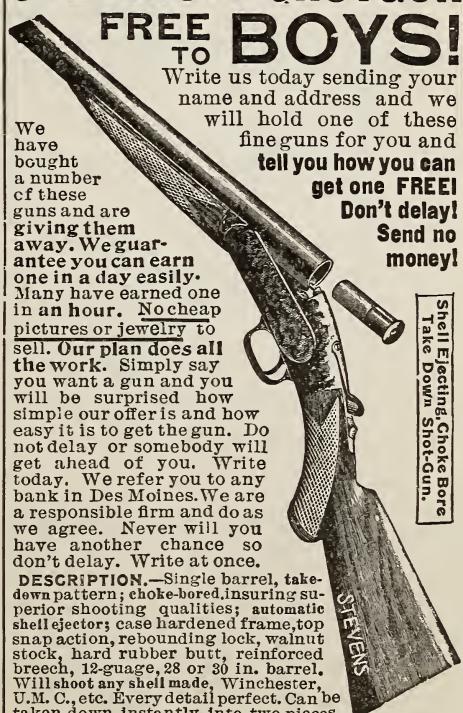
**ONE HALF MILLION** . . . . and the management of prudent and successful business men. . . . . Write for particulars.

The SAVINGS  
DEPOSIT BANK COMPANY,  
Medina, Ohio.

A. T. SPITZER, Pres. A. I. Root, Vice-pres.  
E. B. SPITZER, Cashier.

## STEVENS TAKE DOWN SHOTGUN FREE TO BOYS!

Write us today sending your name and address and we will hold one of these fine guns for you and tell you how you can get one FREE! Don't delay! Send no money!



**DESCRIPTION.**—Single barrel, take-down pattern; choke-bored, insuring superior shooting qualities; automatic shell-ejector; case hardened frame, top snap action, rebounding lock, walnut stock, hard rubber butt, reinforced breech, 12-gauge, 28 or 30 in. barrel. Will shoot any shell made, Winchester, U. M. C., etc. Every detail perfect. Can be taken down instantly into two pieces. Write for book telling what dozens of weight 6 1/2 lbs men and boys say of this gun. Write today.

94 TENTH STREET,  
DES MOINES, IOWA

# 250 PER CENT

## Root's Goods are Winners!

My sales for the last three months have been larger than ever before—over 250 per cent greater than a year ago for the same time. Why do bee-keepers patronize me so well? Because of the *superior* service and *goods* offered. I give **EVERY** bee-keeper a square deal. I have a large warehouse filled with *nice clean* stock, ready for *prompt* shipment. I place Root's goods from Syracuse, at your door, with minimum freight charges, which is an *important* item if you will investigate. For many years I have served the bee-keepers of New York State, and know their needs in every way.

## *The Best is the Cheapest. . .*

*It will pay you well to secure your goods early.* The discount is four (4) per cent for February. The season, too, will be upon us before you know it, and it pays to be ready.

Our catalogs are ready for mailing. If you haven't received a copy, drop me a postal and you will get one by *return mail*.

Yours very truly, F. A. SALISBURY.

## ***The A. I. ROOT COMPANY***

**F. A. Salisbury - Manager**

**SYRACUSE, N. Y.**

## A Successful Home-made Hive for only 50 Cents!

Fully described and illustrated by Mr. Allen Latham, in the Weekly AMERICAN BEE JOURNAL, for Jan. 25, 1906. It is a 32-page number. That copy and the thirteen following ones (three months), as a Trial Subscription, will be sent for ONLY 20 CENTS, in stamps or silver. Better order now before the Jan. 25th number is all gone. . . . By the way, the Weekly AMERICAN BEE JOURNAL is a 20-page paper every week now—full of most helpful information on bees.

## Yon Yonson's Trip to the Moon in Search of New Races of Bees

in an airship with Mr. A. I. Gleanings (also in the Jan. 25th number) is a very amusing story. : : : : : : : : : : : :

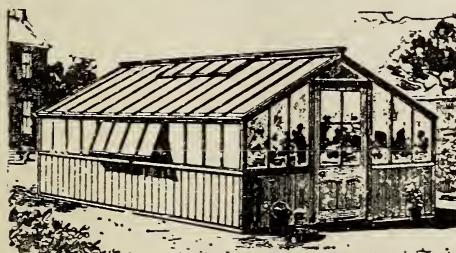
## Hershiser Improved Combined Hive-stand and Bottom-board

is also illustrated and described in the Jan. 25th copy. The fact is, that number as well as the numbers EVERY WEEK are crowded with the very best things that are printed these days for bee-keepers. Better take a "TRIAL TRIP" subscription at 20 cents, as offered above and see for yourself; or send \$1.00 for a whole year's subscription. Address

George W. York & Co., 334 Dearborn St., Chicago, Ill.

### PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,  
Dept. B C. Premier Manufacturing Works. St. Johns. Mich.

Farm and Stock is an illustrated monthly magazine in the interest of CORN BREEDING, Cultivation and Live Stock. Price \$1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn. Farm & Stock, 251 Charles, St. Joseph, Mo.

## GOLDEN Opportunities!

EXIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE  
Gen. Indus. Agt., Portsmouth, Va.  
Seaboard Air Line Railway



### FRUIT BOOKS FREE

Send your name and address at once and you will receive by return mail sample copies of the BEST FRUIT PAPER and full particulars about the "Bro. Jonathan Fruit Books," which may be secured free. FRUIT-GROWER COMPANY 216 SOUTH 7TH STREET, ST. JOSEPH, MO.

# B - U - A BEE - KEEPER

If so, you are entitled to the

## New 1906 Lewis Catalog

WHILE it is desired that this catalog shall be in the hands of every bee-keeper in the land, we beg to advise that the edition is limited and extra copies will soon be at a premium. If you desire the Lewis catalog this year, send now to insure receiving a copy. The Lewis catalog this season leads all the rest. You will find it the handsomest handbook of bee-ware published, listing everything of use to the bee-keeper. The Lewis catalog is acknowledged the plainest bee catalog issued. Any one can understand it, so that it is easy to order from. Hives and supers this year, as well as many other articles, are very clearly illustrated by handsome full-page cuts, which are reproductions of actual pen-and-ink drawings made from the goods themselves, showing plainly all details, which is much to be desired by the bee-keeper, whether he be a specialist, or a beginner with one colony. . . . It is free for the asking, and can be had from any of the following:

# G. B. LEWIS CO. WATERTOWN, WIS., U. S. A.

or any of its agents

ENGLAND—E. H. Taylor, Welwyn, Herts.  
CUBA—C. B. Stevens & Co., Havana.

C. B. Stevens & Co., Manzanillo.

CALIFORNIA—Paul Bachert, Lancaster.  
The Chas. H. Lilly Co., San Francisco.

COLORADO—R. C. Aikin, Loveland.  
Arkansas Valley Honey Producers' Association.

Rocky Ford.

Colorado Honey Producers' Association, Denver.  
Fruit Growers' Association, Grand Junction.

Robert Halley, Montrose.

ILLINOIS—York Honey & Bee Supply Co., Chicago.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Sons, Davenport.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., Faribault.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Aaspach, Kenton.

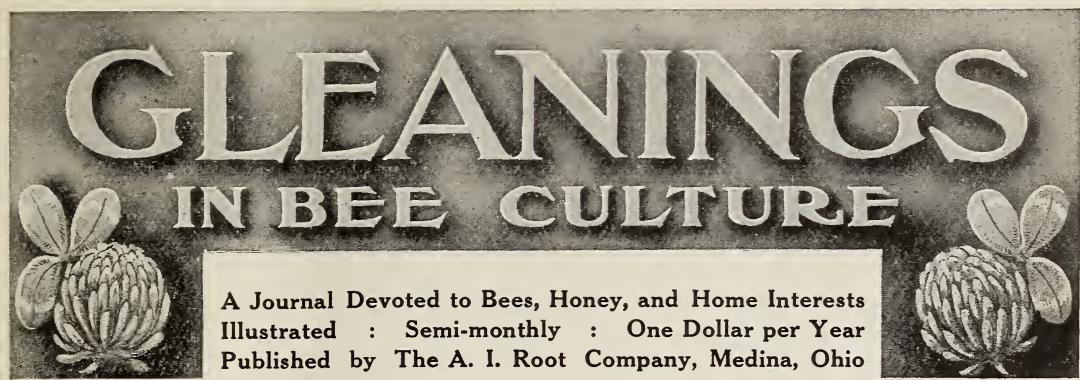
OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Greene, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.



Vol. XXXIV.

FEB. 1, 1906.

No. 3



LOUIS SCHOLL advises a flight after hauling before cellaring, p. 73. Do they cellar bees "in the Southwest"? [Perhaps he is giving some good advice to his friends in the North.—ED.]

CAUCASIAN BLOOD is said to be the hardest kind to get rid of when once introduced, and that seems to be used as an argument against Caucasians. Let's be fair. That fact alone is rather in their favor—shows they have staying qualities.

I'VE READ Hutchinson's new book. It has the fine quality of being readable, and has a lot of good stuff in it. As might be expected from one who is almost daft in that direction, the excellent typography and the fine pictures in the book make it a thing of beauty.

DR. BRUNNICH says, p. 86, that a fertile queen will fast two hours without injury, while a virgin will starve in an hour. One would suppose just the reverse, for the laying queen has the extra draft of furnishing eggs. Yet as I try to recall cases of starvation, it does seem that the doctor is right.

"ADVANCED BEE CULTURE" is said to contain 330 pages, p. 71. It has only 230; but by some curious mistake the last six pages are numbered wrong. [Thanks for the correction, doctor. I looked at the last page, saw the number 330, and supposed it was, of course, correct. There was not much harm done, because this book can not be judged by the number of its pages as to its intrinsic merits.—ED.]

HERE'S HOW Mary Wood, p. 97, can safely poison roaches: Take two small thin boards, and on one of them spread the poisoned food within half an inch of each side. Tack the other board over this; but instead of letting it lie flat down have a piece of section between the two boards at each end, thus keeping them  $\frac{1}{8}$  inch apart. Lay this on the floor of the hive. The roaches can get in, but the bees can't. [That is an excellent plan provided the roaches can get into a space of  $\frac{1}{8}$  inch.—ED.]

G. M. DOOLITTLE doesn't know why a candle disturbs bees in a cellar less than a lamp, page 80. Is it not because the light of the lamp is so much stronger, Bro. Doolittle? Let me suggest this: Take the cover of corrugated paper in which you frequently buy a lamp chimney, cut a hole an inch or so in diameter in one side, put this on the chimney so it will make a sort of dark lantern, turn down the light till it is no stronger than a candle, and see if you don't like it better than a candle.

IMPROVEMENT in bees by "breeding queens on an island with selected drones" is mentioned, p. 76. Good thing. I wouldn't say a word against it, but the thing that's most needed is not so much some great improvement made by one man as even a little attention to the matter of selection on the part of all. My next-door neighbor may keep the best or the poorest cows, and it makes no difference in the yield of milk from my cows; but if his bees are not as good as mine my honey crop will suffer for it so long as I can not control mating.

W. K. MORRISON makes some points on p. 84 that I'll settle with him for if I ever catch him out alone; but his last remark has set me to thinking. If I wanted to try a novelty in sections it would be something like this: A section less in height than width, two beeway,  $1\frac{1}{2}$ , and without separators. I am sure the bees would make more even work than upon thicker combs, and would

finish them more quickly. I'm almost sure that little harm would come from the lack of separators in building combs so thin and of so little height, and I fancy the bees would feel just a bit more comfortable to be allowed to build combs of a thickness they naturally choose, and with no separators in the way.

"DIE Europaeische Bienenzucht auf Amerikanischer Grundlage" (The European Bee Culture on American Principles). How is that for the name of a new bee-journal? The editor and publisher is Herr A. Straeuli, Pastor in Scherzingen (Thurgau, Switzerland), a man who for years has consistently advocated American methods. The first number is a fine specimen of typography, and its contents are entirely in keeping with the name of the journal. Herzliche Gruesse aus dem "wild and woolly West," Herr Straeuli.

D. M. MACDONALD quotes in *British Bee Journal* the advantages I claim for bottom starters, and asks: "Does not the use of full sheets secure all this without the labor of double fixing?" Not by a long shot in this locality, my good Scotch friend. I had much experience with full sheets fastened only at the top. The comb was not so fully built to the bottom — sometimes not at all, and, as a consequence, not so fully filled out at the sides. When honey was coming in slowly, one side of the section was filled faster than the other, and that made the comb swing over to one side so much that sometimes the lower edge of the foundation was fastened to the separator. If you will give bottom starters a fair trial, I think you will find that they will work all right in Scotland.

"REVOLUTIONS don't go backward; look out for the Sucker State next time." That is what I said in last Straws. I meant look out for what would be done by the next legislature. Here's an item from a Chicago daily that shows the trimmers are beginning to see the handwriting on the wall:

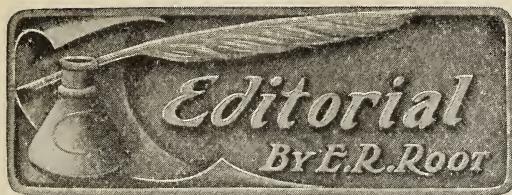
Representatives who, at the last session of the legislature, voted against the local-option measure, now are begging quarter of the Illinois Anti-saloon League. State Secretary E. H. Curtis, of this city, has received during the last few days letters from fifteen legislators who voted against the bill, promising that, if the League will not oppose their renomination and election, they will vote in favor of the measure at the next session of the legislature.

[The same thing is going on to a greater or less extent in other States. The time was, and is in some States yet, when legislators were willing to curry favor with the brewers and liquor-dealers. It is one of the signs that the millennium is coming when some of these same legislators seek the support of the temperance and church people. Here in Ohio there is a good prospect that one or more important temperance measures will be passed, for one of the issues in the late campaign was the Anti-saloon League of Ohio, with the result that the League was vindicated by over 40,000 majority.



"BUT WHEN we have a triplet box we introduce a complication, because we are compelled to get one pair of holes pretty close together," p. 69. Not if you make 'em this way. [Y-e-s, and perhaps I shall have to confess you have the best of the argument on this point if we consider that alone. But there is one feature that I did not mention, and that is this: The two-compartment mating-box is a perfect cube. The division-board in the middle is very thin. The two little clusters of bees will form in the shape of two hemispheres when cool nights or cool weather comes on, one on each side of the division, making one compact cluster, except that a thin board of only  $\frac{1}{16}$  inch passes between. Now, then, when you divide the mating-box into three compartments you make it oblong, and the result is that the two stronger clusters of bees will form hemispheres on each side of one division, leaving the other cluster of bees high and dry. This is not mere theory, but was proved by our experiments last fall. Briefly stated, my objections to a three-compartment mating-box are that it departs from the shape of a cube, and is liable to result in one of the clusters being left without the advantage of the combined heat of the cluster on the side next to it.—ED.]

"COME, NOW, doctor, will it not pay you to rear pure Italian queens, and requeen every colony that does not have pure yellow blood?" quoth ye editor, page 68. I have thought a little of getting pure Italians, not for the sake of having less propolis, but because my hybrids are so outrageously cross; but just now, when I read your question to my assistant, she promptly replied with some warmth, "Not much, Mr. Ernest, we have worked too hard all these years to bring our bees up to their present standard to throw it all away for a little bee-glue or a few stings." If you'll send me a queen of pure stock that will store within five per cent as much as my present stock, I'll pay for the queen and give you a commission besides. [Tell me, doctor, what your present stock will do; and if I can not pick out pure Italian stock that will average as well as your, 'er, well-mongrels, then I will consent to let you go on with your bee-glue and your bee-stings. But I see no reason why the same intelligent care in breeding will not produce as good honey-gatherers from pure Italian stock as from a mixture of blacks and Italians. If you really want stings and bee-glue, why not have a mixture of cross Cyprians and Punic bees? But, joking aside, is it not true, doctor, that the records of some pure Italians are better than the records you have been able to obtain with your mixed blood? I have never really believed the doctrine that it is necessary to have cross bees in order to get good work. We have had too many examples of gentle bees being good workers to make me think otherwise.—ED.]



#### A BATTLE ROYAL BETWEEN A NEST OF BIG RED ANTS AND A COLONY OF BEES.

A MOST interesting and valuable article on some large red ants in Florida appears in another column, from the pen of Mr. O. O. Poppleton. We have published many an interesting article, but never one more entertaining than that contributed by our correspondent. All of our readers, especially those interested in nature study, should peruse it. A battle royal between a big nest of red ants and a powerful colony of bees must be one of the most interesting sights in the world. Then that big rooster — well, read the story yourself.

I saw some of these large species of ants while in Arizona, but was kindly warned by the bee-keepers to "keep a respectable distance away." But I could not resist the temptation to "poke" them with a long stick. The way they would stand up on all fours (or sixes, I might say), and show fight with their powerful jaws was enough to command my admiration as well as my fear. When they saw me on the end of the "big stick" they made a bee-line for me and I — well, I moved on.

#### REMARKABLE WEATHER IN JANUARY IN SOME PARTS OF THE UNITED STATES.

IN this locality, at least, it has been a most remarkable January. An unprecedentedly hot wave struck us on the 20th, 21st, and 22d, the temperature running up to 74 or 75, and hovering near that point night and day. The remarkable thing about it was that, *during the very same period*, the temperature at Duluth, Minn., was down to zero, and in parts of South Dakota and Canada it was 20 to 30 below zero. At St. Paul it was 2 degrees above. In New Orleans it was not quite as warm as in Cleveland. In Kansas City the mercury stood at 20. The weather-forecasters predicted a cold wave from the west; but although three days have elapsed it has not yet come (Jan. 23, 9 A.M.). But we see by the papers that Chicago is suffering in the embrace of a very severe blizzard, and that communication by telegraph and telephone was temporarily cut off.

We have had January thaws in northern Ohio, but nothing like this for 35 years, according to the Weather Bureau, although in our issue for Feb., 1880, some reported their bees as carrying pollen in January, during which month a remarkably warm spell struck us here in Ohio. On Sunday, the 21st of the present month, doors and windows were

open in most of our homes, and the bees were having as big a gala time as we ever saw during the balmiest days in May. It was so very warm that, before we knew it, there was some robbing. Robbing in January — we never had such a thing before.

*Later.* — The much and long expected has come. The temperature, in five hours, dropped from 69 to freezing, with a high wind. The bees have quit their play and robbing, and the wind pierces to the marrow of the bone.

#### EXPERIMENTS AT MEDINA IN WEIGHING UP STORES CONSUMED BY BEES OUT-DOORS AND INDOORS.

FOLLOWING our usual practice, which practice is in line with that of Doolittle and others, we put up half the bees outdoors in double-walled hives and winter cases, and the other half in the cellar. When they were fixed up finally for the winter the hives both indoors and outdoors were weighed. During the very warm spell of weather referred to in another editorial, we brought a part of the bees in the cellar outdoors, and let them have a flight. After the flight they were all weighed up to see how much of the stores they had used up during confinement. The test comprised 15 hives in order to get an average. These were compared with 15 other hives of equal strength outdoors in double-walled hives and winter cases.

Now, you might guess that the amount of stores consumed outdoors would be twice that consumed indoors; but the figures show that 4½ lbs. was the average consumption up to date for the indoor bees, and 5 lbs. for the outdoor. Practically there was no difference; but taking into consideration the extremely mild winter we have been having, the winter has been very favorable to outdoor bees and decidedly unfavorable to those inside. But even taking the conditions as they were, the indoor bees showed a slight gain of half a pound in the amount of stores saved.

The winter thus far has been for the bees one of the mildest we have known for many years; and it is not surprising, therefore, that the actual amount of food consumed by the outdoor bees should be little if any more than the food consumed by the indoor bees. When we come to weigh up next spring we may see more difference; for when winter "comes in like a lamb" it is liable to "go out like a lion." Another winter, if a severe one, would show, I think, a decided gain in favor of the inside bees.

#### EXPERIMENTS IN VENTILATING OUR SHOP BEE-CELLAR.

DURING the very warm spell referred to in another editorial, the bees in the shop cellar began to get uneasy because of the high temperature of the cellar, part of the time running as high as 70 degrees. We opened the doors of the other apartments, but this did not have a tendency to reduce

the temperature, much less to quiet the bees. We put a small electric desk fan in the doorway, and let it run for an hour or two, when, presto! the temperature dropped, and the bees stopped their zip, zip, buzzing and flitting to the floor. But the temperature went down no lower than 62. Of course, a blast of air does not change the temperature; but if the air in any part of the cellar is lowered it will tend to equalize the temperature. You see the fact was, the bees had warmed up their apartment by their own body heat. When we gave them fresh air from one of the other compartments by means of an electric fan and reduced the temperature, they quieted down.

On Sunday, the 21st of January, when it was very warm, I found the bees were quite uneasy. As there was no current on to run the fan I opened the doors; but as no air was stirring it did not produce the desired effect; for, as a matter of fact, the temperature outdoors was the same as that inside, and there was no circulation. That night, when the current came on, I started the electric fan, and in the course of an hour I had the satisfaction of observing that the bees were quieting down. Now, mind you, the temperature had *not changed one degree*; but the *air was changed and freshened up*. What was the temperature? It was 63.

When I hear anybody say that it is not necessary to ventilate bee-cellars, I say yes and no. There are very few cellars indeed where it is not better to ventilate, and these are the ones where the temperature can be kept near 45 almost throughout the winter; but where it is liable to go up to 60, then I believe that ventilation is a necessity if we would have good results. Prior to the warm days just mentioned I took quite a prominent bee keeper into our bee-cellars. The bees had been in about two months. We looked down on the cellar bottom, and it was so clean of any stray dead bees that I concluded it must have been swept, and so informed our friend; but later I learned from Mr. Pritchard that the broom had not been used in the cellar at all.

#### “HIGH LIGHTS” OF THE CHICAGO CONVENTION.

I HAD intended to give a summary of some of the discussions, but finally decided not to do so, in view of the fact that the official verbatim report will be out soon, and that the membership, at least, can get a copy, and others interested can secure one by becoming a member by the payment of \$1.00 to the General Manager, N. E. France, Platteville, Wis. In the way of a prelude to the reading of the report, I might say that at this convention there were several “high lights” (borrowing a term used in photography) that left a strong impression on those who were permitted to be present. I will not mention them all; but suffice it to say that Dr. E. F. Phillips, in charge of apiculture at the Department of Agriculture, Washington, fairly captivated the convention. His paper detailing the work done by

the Department was listened to with the closest attention; and the discussion that followed showed that the members were deeply interested.

R. F. Holtermann was another high light who aroused considerable interest in his methods of producing extracted honey. A. K. Ferris, of Madison, Wis., told of his method of swarm control; and L. A. Aspinwall, of Jackson, Mich., described his system of producing comb honey, by which, also, swarms could be held in check at the same time. The details of these various methods will be given later in GLEANINGS, for some of the writers have promised to write them out more fully than they gave them at the convention even. Mr. Holtermann is already describing in this issue his honey-strainer.

A very pleasant incident occurred in which Mrs. J. J. Glessner, of Chicago, presented, through Dr. Miller, two gavels—one for the President of the Northwestern Bee-keepers’ Association, of which G. W. York is President, and the other to the National Bee-keepers’ Association, of which C. P. Dadant is President. These gavels were made out of a tree planted by Rev. L. L. Langstroth at his old home in Dayton many years ago. Dr. Miller was in a reminiscent mood, and gave some interesting history regarding Langstroth. Then he also read some letters from contemporaries of Langstroth that had never been made public. While perhaps there was not much in this in the way of valuable bee-lore, yet I think the convention did well to spend a little time in a substantial recognition of the man who revolutionized bee-keeping throughout the world by his inventions.

O. L. Hershiser read a valuable paper on wax-presses which created an unusual amount of enthusiasm. Some thought presses were unnecessary because they were *sure* they could get *all* the wax out of the comb. Mr. Hershiser jolted the confidence of these people considerably when he offered to pay them a dollar a hundred for all their slumgum and pay the freight on it to Buffalo. He made big money out of people who talked that way, and could do it again.

The unconventional conventions between sessions were a prominent feature of this meeting. There was a large exhibit of bee-keepers’ supplies in a couple of rooms adjoining, and thither the bee-keepers would congregate to discuss the merits of the various new things that were presented. I believe that these little conferences between sessions are often more valuable than the regular convention discussions, because each bee-keeper can inquire into the very thing he wishes to know most about by going to the expert who is best posted on that particular phase of the subject concerning which he inquires.

There were numerous other “high lights” such as C. A. Hatch and William M. Whitney, who were active in the discussions on the floor, and contributed much of value to the meeting.

ADVANCED BEE CULTURE—NEW REVISION;  
CONTINUED FROM LAST ISSUE.

In the chapter "The Management of Hives and Buildings" two things, the author says, need consideration: The convenience of the operator, and giving such an individuality to each hive that each bee can readily distinguish its home. The apiary ought to be some distance from the highway. Nearly level ground is preferable. If it slopes to the south, so much the better. The honey-house or building should be located on one side or corner, so that the whole apiary can be taken in at a glance. As to the arrangement of hives, he seems to prefer the group plan rather than the straight-row idea because it gives an individuality to the hives.

In the chapter entitled "Comforts and Conveniences in the Apiary" he enumerates a number of useful tools — first a hive-cart such as is used by H. R. Boardman; an arrangement for opening the screen door into a honey-house by stepping on a pedal, as used by J. A. Green, is especially recommended. A spring-bottom oil-can to squirt kerosene on smoker fuel when firing up the smoker also has his approval. The clothing should be so arranged that one garment can telescope into another in such a way as to prevent the bees from crawling up under against the person of the bee-keeper. He has no use for gloves. They would seem to him too much like a cat with mittens on trying to catch mice. The lawn-mower (scarcely a comfort) is a necessity. A smoker is indispensable. The articles for lighting the same should be convenient, matches especially. A wheelbarrow, and a bee-brush of the Coggshall pattern, receive his special approval.

"Shades for Bees" is the title of the next chapter. This is dependent somewhat on the locality. The regular standard shade-board, the board projecting more in front than in the rear, with hives always facing east or west, he regards as very simple and effective. Trees, he thinks, furnish too much shade at the wrong time.

In the chapter "On the Contraction of the Brood-Nest" he does not advise the contraction of an established colony. If it does not fill its hive properly at the time of putting on the sections, then contraction is necessary if the colony is to be worked for comb honey. A really contractible hive of the right sort he regards as the Heddon, because contraction is accomplished horizontally rather than vertically.

In the chapter "On the Use and Abuse of Comb Foundation," which, by the way, was the subject-matter of his first book, of which this one before us is a revised edition, he says, "All through the working season wax is being secreted by the bees to a greater or less extent; and, if not utilized, it is lost." For the production of comb honey he recommends hiving swarms on starters, then putting on top a super of drawn or bait comb. When the bees once get in the habit of storing above they will keep on putting their surplus there. He made repeated experi-

ments in hiving on full combs, on full sheets of foundation, and on starters. The first plan he found to be expensive and wasteful. The full sheets of foundation gave good results, but no better than the starters. While there will be some drone comb built, yet about eighty per cent of his combs were all worker, and the equal of those built from full sheets of foundation. A queen-excluder must be used when hiving on starters, and a small brood-nest in addition, he says, is imperatively needed. At this point I suppose he refers to the divisible Heddon hive, and the reader will find difficulty in harmonizing this statement with a former one in the book favoring the Langstroth hive. As great emphasis is laid on the production of comb honey, then, after all, the bee-keeper (if he follows Mr. Hutchinson's advice when running for comb honey) would have to use the shallow hive instead of the full-depth Langstroth which he advises earlier in the work. But perhaps the major part of this chapter was not "revised," and was written at a time when he preferred the Heddon.

"Increase, its Management and Control," is the title of a chapter that is very fairly written. He recognizes the difficulties in this vexatious problem of keeping swarming under control. The causes that lead to swarming he believes to be an undue proportion of young or nurse bees to the brood to be nursed. Giving bees an abundance of empty comb in which to store their honey overcomes this condition, and swarming very seldom occurs. In short, he says extracting the honey, or, to be more exact, giving plenty of empty comb, is the most successful practical method of controlling increase. In the production of comb honey it is doubtful if there is a profitable method of preventing swarming. But "shook" swarming he thinks is the best solution of the problem, because it enables the bee-keeper to handle his swarms at his own convenience. Then he goes on to describe the *modus operandi*. For the prevention of after-swarming he recommends the Heddon method, which, though, he says is not infallible. He concludes the chapter by saying the man who is raising comb honey as a business will find it to his advantage to allow each colony to swarm once, then make the most out of the swarm.

The chapter "On Hiving Bees" deals with methods for handling the swarms after they have issued from the hive. Natural swarming, he says, with its uncertainties, anxieties, and vexatious losses, is destined to become a thing of the past. Artificial methods will take its place; but where swarms are allowed, the queen's wings should be clipped or her flight controlled by means of a trap in front of the entrance of the hive. This saves a large part of the work of hiving, avoiding the climbing of trees, and, to a great extent, the mixing of the swarms. Swarm-catchers, devices for putting over the entrance as the bees are pouring out, are described and discussed.

Driving or bringing down swarms while

in the air by means of a spray of water from a suitable pump is recommended.

In the chapter on "Commercial Queen-Rearing," various late methods are described — notably the Pridgen, the Stanley, the Laws, and the Swarthmore. As Mr. Hutchinson is an old queen-breeders, he is at home on this subject, and the chapter is well worthy of a careful reading.

On the subject of "Introducing Queens" Mr. Hutchinson is equally at home. He describes conditions favorable to introducing; and particularly does he mention the importance of having the queen behave properly when placed among her new subjects. The Simmins method of direct introduction is commended. But queens that come from a distance must be handled differently from those just taken out of the hive. When one comes, however, in a jaded condition he would put her in a wire-cloth cage that is open on one side, and press the cage against some brood and unsealed honey. The tobacco method as well as the young-hatching-brood methods both receive favorable consideration.

The chapter entitled "Feeding Bees" will be considered orthodox from the standpoint of most bee-keepers. The author is somewhat doubtful of the value of feeding to stimulate in the spring, although he thinks it is advisable to give syrup when there is a dearth of honey shortly before the honey-flow. He mentions Mr. Boardman and Mr. Alexander, who not only feed to keep brood-rearing in progress, but to fill the brood-nest with sealed stores so the surplus honey, when it does come in, will be forced into the supers.

Feeding back to complete unfinished sections may at times be very profitable, in the opinion of the author. He has fed back thousands of pounds of extracted honey, and his method, briefly described, is as follows:

The unfinished sections are divided off into three grades—the best-filled, the next best, and the poorest, each grade being put into separate supers by itself. He prefers, first, black bees; next, hybrids. The colonies must be strong, and have young queens. Having selected the colonies, he puts on first a super of the best-filled sections, then on this another super of the second-best filled; on top of all, a Heddon feeder. This is filled with the best grade of extracted, which has been thinned down with hot water to the proportion of one quart of water to ten pounds of honey. The feeding should be done at dusk, for any feeding puts the bees in an excited state, and when there can be no flying there can be no uproar. The second-best filled sections, being on top next to the feeder, will get the most feed, so that both upper and lower sets of sections will be filled about the same time. After the combs are drawn out to full length, and filled with honey, he feeds no more for two or three days. This is for the purpose of making the bees cap the sections over in the mean time, instead of drawing out the comb to hold more honey. If there is any time

when separators are needed it is in feeding back.

The author admits that there are two objections to feeding back. One is, that the fed honey has a slightly different or "off" taste from that stored directly from the flowers. The other objection is, that "fed honey" will candy quicker than other honey.

Taking one year with another, he has secured about 2 lbs. of comb honey for every 3 lbs. of extracted fed. With the right kind of weather and colonies he has done much better, sometimes going as high as 4 lbs. for every 5 lbs. fed.

In closing this chapter he urges bee-keepers to be sure that honey to be fed to bees for any purpose contains no germs of foul brood. To buy honey in the open market and feed it to the bees would be a most risky proceeding. For stimulating feeding and for winter stores he strongly urges sugar syrup, because, he says, it is cheaper and safer as well as better.

In the chapter entitled "Production of Comb Honey" our author attaches great importance to strong colonies overflowing with bees; the brood-nest should be crowded with bees and brood at the opening of the harvest. Unless there is a crowded brood-nest bees are inclined to store below, and loaf; when the hive is jammed full of bees it results in a "pressure," so to speak, that forces bees and honey into supers.

While he considers unfinished sections or "bait combs" as an advantage to induce the bees up into the supers, he seems to favor the giving first a super of half-depth extracting-combs. When the bees get well started in these they are taken off and section supers are put in their stead. Toward the close of the season these extracting combs may be put on again to catch the tapering flow.

In the matter of tiering up, he has not found it profitable to go more than three supers high at a time.

The chapter entitled "Extracted Honey" is an extra good one. One reason, he says, why comb honey in so many instances is found to be more delicious than extracted is because the former is more thoroughly ripened. Seldom does he find extracted honey equal to that dripping from and surrounding a section of honey.

While he admits that the dark and off grades of honey may be extracted, perhaps before they are fully ripe, because this honey is sold for manufacturing purposes, the real fancy table article he thinks should be left on the hive until it is entirely capped over and ripened. By having an extra supply of combs they may be left on the hive until the bees have been permitted to put on the finishing touches in the matter of flavor. He would leave the honey on the hive a few weeks after it is sealed, because all such honey seems to acquire an added richness. Of course, it may be difficult to extract, but supers containing such combs before extracting should be stacked up in a warm room.

*Conversations  
with  
Doolittle*

CELLAR WINTERING UNDER AN EMPTY HOUSE.

"Hello!"

"Is that Mr. Doolittle?"

"Yes. Who is speaking?"

"Alpine McGregor."

"What! 'way down here from 'frozen Canada'?"

"Yes; only, perhaps, we are no more frozen than parts of York State."

"Well, I guess you may be right; for it is cold enough here to satisfy almost any one. But never mind. We have a good fire in the house, or in the shop—which shall we go to?"

"Perhaps the shop, for we shall be the least likely to be disturbed there."

"All right. Enter. Here, take this big easy-chair, for you must be tired from your long journey. What can I do for you?"

"If you have time I should like to have a little talk with you."

"All right. Time is one of the most precious commodities I have; but it may be fully as precious to me when talking with you along bee-lines as when used in any other way. In fact, the time spent with and about the bees always seems to render more value to me than any thing else except time spent in the service of the Master. What is the 'little talk' to be about?"

"I want to know how to fix my house or bee-cellars, or both, so as to secure the same temperature where the bees are to be kept, when no person is living in the house, as now when a fire is kept going night and day in the room above the bees."

"This is quite a problem; but before we tackle it allow me to ask, why this question?"

"Because I expect soon to live in the city during the winter, when the house will be empty and the bees in the cellar."

"Yes, I see. Have you thought of any plans to secure the satisfactory results you wish to obtain?"

"Yes, I have thought of two. First, nail boards on the under edge of the joists, or sleepers, thus ceiling the top of the bee-room."

"How wide or deep are your sleepers?"

"They are twelve inches wide or deep below the floor."

"That is a greater width than is generally used here in this State, and will be a help to you in your plans. What besides the boards had you planned using? Or is your idea that of having only a dead-air space between the floor and the boards?"

"I propose to fill this space with dry sawdust as the boards are nailed on; and when I come near the finishing end I will put in bags of sawdust so it will not run out, or

take up a floor board and fill in from above so that the whole space may be completely filled. Which do you think would be preferable?"

"If the floor board can be easily taken up, the filling in with the loose sawdust will be better; for with the bags there would be liable to be more or less open spaces without sawdust; and this would be against the object you are aiming at."

"My second plan is to make four large sacks, similar to the mattress for a bed, the same being of a size so that the four would just cover the floor above. These are to be filled with chaff or cut straw. And I will also make a long narrow one which will just fit in the hallway, which is slightly to one side of the bee-room below."

"Yes, I see—any thing else?"

"Yes, I had thought of one other way, but consider it too dirty for practical use, so have dismissed it entirely."

"Well, if you have dismissed it probably you may be right. But it often happens that the thing we discard proves to be just the thing that would have been the better."

"Possibly that is right. The thought was that of covering the floor above the bee-room with loose cut straw, chaff from oats, or al-sike-clover chaff."

"I see. But what is there dirty about this cut straw or chaff?"

"I thought it would destroy the paper on the lower part of the wall, and make the house unfit to live in during the summer."

"I am not so sure about that. Surely all you have mentioned are clean substances—only, perhaps, the dust, and dust we always have, even with the most particular house-keepers. Just set some boards up edgewise about the room to keep the chaff off the paper; and, if you feel that way, put newspapers over the boards, then fill in the chaff to the depth you wish it, and you are all right. Of course, you will take up the carpet before putting in the chaff. When spring comes, and you wish to live in the house again, take out the chaff, the same as the straw is taken out with those who use it under carpets, and sweep the floor a couple of times, and you have nothing dirty left if I see things correctly."

"Then you prefer the loose chaff to mattresses?"

"I certainly should. Where sacks, bags, or mattresses are used, there are spaces where the air can pass through rapidly; and thus a sort of draft is made at these places; but with the chaff evenly distributed over the whole, such do not appear except as one great whole, and thereby we can secure a greater evenness. But do I understand that you will leave the sawdust below the floor out of your plans, if you adopt the chaff above?"

"Yes, that was my calculation. What do you think?"

"I certainly would use both, for I have found that the best protection you can use, with an empty house above a cellar, is none

too much. Put your sawdust in by all means, as that will not only help regarding the temperature, but it will also take up much of the moisture, thus allowing your chaff above to remain dry and nice till you take it out in the spring."

"Well, I thank you for this thought. I believe you are right."

"What is the temperature in your beehive now?"

"About 45 degrees. It varies from 42 to 48, but can be kept between 45 and 48 if the windows are properly protected, as I now have them."

"Well, that is a good temperature, I am sure. Do you have any ventilators for the cellar?"

"No; and, so far as I can judge from the past, none are needed."

"That accords with my views."

"Any thing more?"

"I just want your views regarding just how low the temperature may go in a beehive, how long continued, and yet secure fairly goods results in wintering bees. That is all."

"Of course, the 45 to 48 degrees is the nearest right of any thing you can have; but should the mercury drop to 40—yes, or as low as 35—for a day or two it would do no particular harm. But with the cellar fixed with the foot of sawdust below the floor, and eighteen or twenty inches of dry alsike-clover chaff above the floor, I do not think it will fall much lower than it has been in the habit of doing while you have been living over the cellar. In fact, I think you will get a more even temperature in this way than you have formerly had. Of course, you will see that the outside walls of the cellar are well protected, so that the cold will not get in from that way."

"Yes, I have these walls well protected. I'll be going now. Good by."

"Good by, Mac."

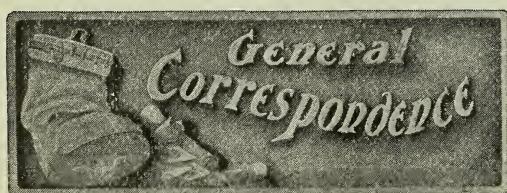
the principle of "the survival of the fittest." In honey-production, and in the production of many other articles, we have not only to meet the competition of those engaged in the production of an article the same as what we produce, but we have to face the fact that there are many articles which, in a more or less direct way, enter into competition with our own production.

Bee-keeping, in my estimation, is on the threshold of very great developments. It is going to be on a sounder footing than it has been. Good wintering, better management during the spring, the prevention of swarming, selection and control in breeding, and more modern appliances, are going to result in larger returns per colony. Added to these, better appliances will reduce the cost of production; and, although proper help and effort on our part would and should enable us to create a greater demand for honey, yet, if need be, we shall be able to sell at a lower figure, and yet make a better margin of profit.

For two seasons I have, in a more or less quiet way, been carrying on tests in the straining of honey, and have been seeking to reduce the labor in this connection, as it comes in at the time when every moment counts, when few have any time to waste, be they of the class with whom bee-keeping is a side issue, and those who have but little time to spare for the bees, or be they specialists who have many colonies and all require extracting at about the same time. During robbing time it is desirable to extract quickly in times when honey is coming in rapidly. It is necessary to be expeditious; and if, as is sometimes the case, the bees have turned from gathering light honey in inferior grades, urgent haste is required.

In studying out short cuts, and being crowded during extracting time, I conceived the idea of straining the honey before it left the extractor, and so arranging it that the honey would run from the extractor direct into the storage-tanks, barrels, or cans. All the advantages of the plan were not seen until the system had been tried; and now as far as myself and Mr. Morley Pettit, who has also tested the matter privately, are concerned, we would pay a good deal not to have to go back to the old system. With a six-frame extractor I have extracted and stored at two different times in 8½ hours, between 5200 and 5300 lbs. of honey, which was practically all capped; and I have, besides cleaning up and moving to two different apiaries, averaged for six days over 4500 lbs. per day. This season it is my intention to use an eight-frame extractor and one of your gasoline-engines, and an uncapping-machine at which I have been working for some time, and under the same honey conditions in the hive. I think I shall be able to extract easily 7000 to 7500 lbs. in a day of 8½ hours.

In the old strainer as it has been used, the honey is drawn from the extractor through a gate. It is run into a pail, and from there strained through a cotton or fine wire cloth above a storage tank. Where honey is ex-



#### A HONEY-STRAINER INSIDE THE EXTRACTOR-CAN.

Honey Direct from the Comb to the Storage-vessel.

BY R. F. HOLTERMANN.

The manufacturer is constantly seeking, through his own ideas and those in his employment, to reduce the cost of production; and the one who has the shortest cuts, who can produce for the least money or least outlay of labor, can, with a smile, reflect upon

tracted rapidly, cost is reduced to the finest point; and yet under such a condition one person is kept pretty busy attending to the drawing-off and emptying of the honey. Who has not had the experience of allowing honey to run into a can or pail, and, in attempting to do something else while the vessel was filling, allowing the honey to run over, with its consequent loss of the same, also the loss of a valuable hive in cleaning up the mess?

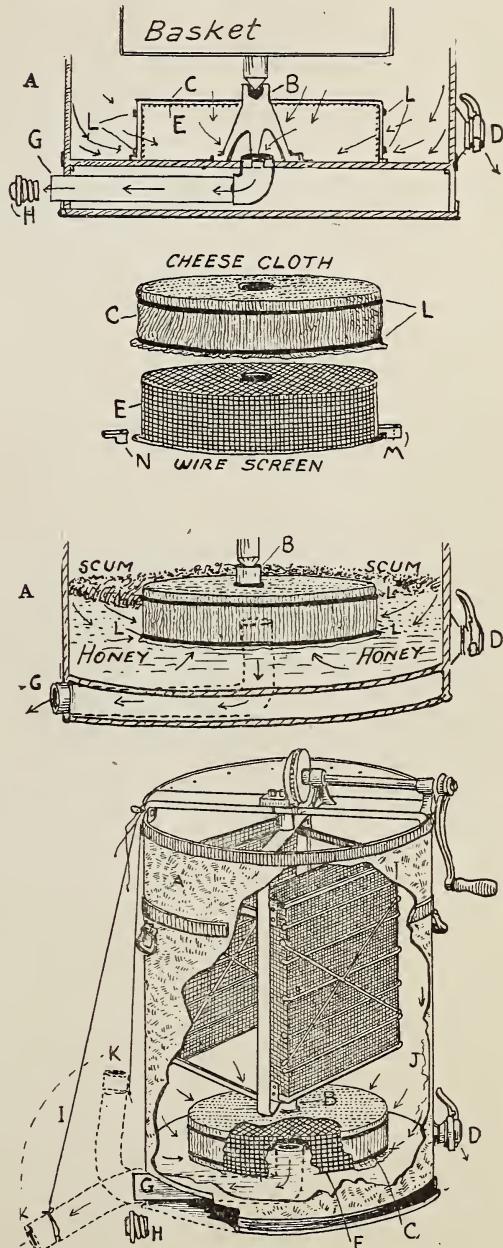
We long ago considered the only safe way was for one person to make this his only business. Next in the act the honey has been allowed to reach the level of the floor, and then it had to be lifted up to the top of the can upon which the strainer stands or lies. The scientific way of figuring this is foot pounds; from the floor to the top of the strainer, say 5 feet,  $4500 \times 5 = 22,500$  foot pounds or lift per day. This work and risk can be avoided. Next, honey strains more readily when warm than when cold. The person who is doing rapid work, and passes the combs from the hive through the uncapper, the extractor, and out, has the advantage of the person extracting slowly and allowing the combs to become more or less cold.

In this process of emptying into a pail from the extractor, and then lifting to a strainer, the honey cools and thickens and becomes more difficult to strain—heat is lost.

Again, with any strainer, where the honey is directly above it, every particle of scum, after the honey has run through, will fall on and stick to the cloth; hence the strainer becomes readily clogged and slow in operating. The portion of the strainer that is highest will first become clogged. I refer particularly to such a position as is found in a cloth sagging toward the center, and thus the cloth becoming readily clogged.

The extractor with the strainer illustrated in this article is placed by us either upon legs (I prefer this, and in this matter we might well take a lesson from our European brethren), or upon a high stand. The uncapper, instead of lowering the comb into a super with a drip-tray underneath, puts it into a super about on a level with his arm. The extractor-operator's position is on a stand conveniently high to the extractor. His empty supers are on a convenient pile to dispose of the empty combs. The extractor is set at a height so that the opening from it is higher than the top of the tank, can, or other vessel into which the honey is to be conducted. We, without inconveniencing ourselves, and without discomfort or unnecessary bringing up and down and again up and down, raise the comb to the uncapping-tank, then place it on the super on the same level; then put it in the extractor; work up to a definite point, the top of the extractor, and then by gravitation let it go to the storage-tank. Few are so situated that they can; or would it suit their purpose to run honey down a hill? If they are, the only difference will be that the honey-extractor will not need to be set up so high.

Now for a description of the strainer. A is the extractor-shell; B is the point at which the extractor-reel rests on the cone, which rises above the strainer. The strainer is fastened to the bottom of the extractor by four buttons or a similar device, M (closed); N (open). The strainer is constructed just the opposite way of an ordinary strainer. The pan, let us call it that, is inverted, and



HOLTERMANN'S HONEY-STRAINER.

the outside surface used instead of the inside. The upright surface is used, and the honey approaches the strainer and passes through it sidewise; but only in case of a partial or threatening block does the honey rise above the sides of the strainer, when

immediately a much-enlarged straining surface, the entire top of the strainer, comes into play. The honey runs down the side of the can, and then rushes in its impetus from all sides to the center of the can, where, warm from the comb, every feature, impetus, and warmth being taken advantage of, it is forced through a strainer of wire cloth and a fine quality of cheese-cloth over it. The scum naturally keeps to the top; finer particles are drawn down; but whenever the strained-honey outlet is closed it begins to gravitate toward the top of the honey, and finally, when the extractor is emptied, almost all of it will rest on the bottom of the can between the extractor-can wall and the strainer.

The first thing in the morning, this, with a flat-ended scoop, is collected and emptied through the gate. In this way I have used the strainer, without further cleaning, day after day, or until that extracting was finished and every thing thoroughly cleaned as every extractor should be. I used to remove the cloth each day and wash it. This I did by placing the baskets and arms in a position to give the most room to get down, then slip on a long pair of print sleeves and remove and readjust the cloth. There is no great difficulty about this, but I found it unnecessary.

It may be fairly asked, "Why not cover the entire distance across the can with a strainer?" By this method the straining surface is not increased. Again, the scum must all settle on the strainer — a very objectionable feature; and, next, a very important feature in my system, and which is a new feature also, is that if, for any reason, we have to extract honey very thick through cold, etc., artificial heat can be applied to the straining and unstrained honey, and kept applied until it passes out through the rubber hose K. This can be done to the degree required by putting a coal-oil or gasoline stove under that portion of the extractor bottom which has above it unstrained honey. The metal bottom being an excellent conductor, if needed it can heat the entire can, and the honey be made sufficiently warm for every emergency. My son Ivar has attended to using or not using, raising, or heating, covering the flame as required as he turned the extractor. For this idea I am indebted to a young man, a student of mine, Arthur Feather. The honey, as will be seen in the illustration, is drawn off through the pipe G, which runs from inside the strainer to the outside of the can, where it is connected with the pipe K, which is raised when the flow is to be shut off, and lowered when in use. A moment does the act.

The drawing is not quite correct. The outlet from the inside of the strainer should not be directly under the cone, but a little to the side. We have various lengths of this rubber hose, with joints, so the honey can be conducted at various distances. No one need watch the larger tanks, and they can be shut off when about but not quite

full, or the boy who handles the extracting combs, if a barrel is to be quite filled, watches them at the last moment.

Another advantage I find in the strainer is that, in the old system, fine strings of honey are constantly passing through the air, carrying that air with it into the honey, and producing a froth somewhat like the white of an egg and air beaten together. This scum does not form with my strainer, because the honey, as seen by the lettering, flows unbroken through and out. It has been argued that the froth is foreign matter, such as wax particles. The froth, doubtless, will have this if the strainer used is not perfect, and the same care must be used in properly adjusting the cloth as with other strainers. It is well to bring the cloth right under the edge of the inverted wire-cloth strainer as well as using rubber bands, L, L.

This extractor can, perhaps, be improved. Several who have not used it, and therefore speak simply from theory, have tried to do so and failed. These features, however, must be retained: 1. A strainer inside of a honey-extractor; 2. Two outlets through the can, one for the strained honey, the other for the ejection, from day to day, of the scum which accumulates; 3. A portion of the unstrained honey to reach the bottom of the can before straining, this to enable the application of artificial heat when needed to allow the main portion of the scum to settle on the bottom of the extractor instead of the strainer; and, lastly, to allow a side surface as well as top surface through which the honey can strain.

In this system of straining, the honey is exposed to the air for the least time, and the aroma is retained if the honey is at once stored in air-tight vessels, which, in this system, it can be, as it is strained as it comes from the extractor. In straining in the ordinary way, or by gravitation, which requires storage-tanks, besides the added work, aroma is lost in the storerooms which ninety-nine out of a hundred have, and in ordinary climates moisture is collected, and germs of fermentation, which are always floating about, settle in the honey, and may be the foundation for trouble at a future time.

Brantford, Ont., Can.

#### DEPREDATIONS OF ANTS OR BEE PARALYSIS.

How Species of Ants will Destroy Large Colonies of Bees in Florida; a Most Valuable and Interesting Account of Their Depredations and How to Combat Them.

BY W. F. MCCREADY.

I have just had an experience with bee paralysis, or something of a similar nature. On the 6th instant, at my out-apriary about a dozen bees were noticed clinging to the grass and trying to fly to their hive. Ex-

amination showed every thing, with one exception, seemingly in about its ordinary condition — bees covering six or seven combs; plenty of honey; pollen; considerable capped brood in two or three combs, although the queen was not seen or looked for. The exception consisted of a crack,  $\frac{1}{8}$  inch in depth, between hive body and bottom, the entire length of one side of the hive, which had been caused by a nail springing them apart when they were being made ready to move at the beginning of this season.

The superfluous opening was closed; and, as the affected bees were so few in number, it was hoped that the disease, if it were such, would be entirely eradicated by the time of my next visit, which it was the intention to make within two days.

Press of work prevented my seeing the colony until to-day, when all of the bees, except about half a dozen young ones, were found to be dead, on the ground about the front of the hive and an army of large red ants was in possession inside. The sick bees did not appear to be much if any swollen. If it was paralysis, did it not operate in an unusually short period of time?

When the combs were removed it was noticed that the bees had placed a covering over the hive entrance for an inch or more, as though trying to exclude the cold — although as yet we have had only a few nights that were sufficiently cool with all windows and doors open to require any addition to the summer bed-clothes other than a single light quilt or blanket; or were they probably trying to make the entrance smaller to enable them better in their weakened condition to repel the ants?

Estero, Fla.

[Not knowing exactly what the trouble might be in this case, and remembering that Mr. O. O. Poppleton, of Stuart, Fla., was not only an expert on all phases of bee paralysis but all other peculiar conditions in Florida, we forwarded Mr. McCready's letter to that gentleman for diagnosis, and he replies as follows.—ED.]

#### MR. POPPLETON'S REPLY.

To comply with your request to answer the questions asked by Mr. McCready in his letter brings up a matter of no great interest to any one outside of Florida, or at least of the extreme South, and one I had supposed had been fully written up; but in this I may be mistaken.

No. Paralysis does not act as quickly as in this case, and, in fact, Mr. McC. describes none of the ordinary symptoms of that disease. His colony was, without doubt, destroyed by ants, the large red species variously known as bull ant, horey ant, and sugar ant. With one exception these ants are the worst enemies bees have here in Florida, and only constant vigilance from September to December inclusive will prevent the loss of many colonies every season.

These ants are usually found in our hummock lands, and only occasionally in clean pine woods; are red in color; of very large size,

frequently measuring nearly or quite half an inch in length; are strictly nocturnal in their habits, being seldom seen in daytime except when disturbed or waging battle with a colony of bees; are usually found in decayed wood, through which they cut out galleries for use as living-apartments. A favorite place is in a partly decayed saw-palmetto root in the ground. Nearly every cabbage-palmetto tree contains a colony of them among the roots near its top, and for this reason a thick palmetto grove is one of the worst places an apiary can be located. They are also found in piles of old boards, and on the ground under old boards or logs. They also like to enter our houses and locate in trunks, boxes, drawers, and in almost any place where they can find a few inches of space to locate in. They are frequently found in the tops of our hives if there is sufficient space above the bees under the cover.

At sundown they start on their nightly quest for food; and if near an apiary a few of them will usually be seen running on some of the hives. As long as only two or three can be seen on any one hive, no special attention need be given them; but if a dozen or more are seen it means that they have probably selected that hive for their own use, and it needs close watching. They will continue their regular attentions to that one hive, gradually increasing in numbers until they decide they are strong enough, when nearly the entire colony of ants will boldly attack the bees by biting off wings and legs, and crippling them so they are of no more use. Bees fight back courageously, the battle continuing for hours, and sometimes a day or two, according to the relative strength of the two belligerents. The inside of the hive and the ground near by will be strewn with dead ants and dead and crippled bees; but it always ends with the destruction of all the bees, and the moving in and occupation of the hive by the ant colony. When ants have once chosen a certain colony of bees to work on, the bee-master has got to destroy the ants, root and branch, or they will in time destroy the bees. If a part only of the ants are destroyed they will simply bide their time until they have built up strong enough, and then do the work. I know of few or no living creatures more persistent in evil works than are these bee-killing ants. They also, in certain localities, do great damage to queen-rearing nuclei.

During the fall months I make it a practice almost every evening after dark in my home apiary, and as often as possible in the out-apiaries, to see by the light of a lantern the front of every hive; and any one on which I see three or four or more ants running over has a marker placed on it. If the number of ants on any one of those marked hives increases each night I give that hive especial attention until the ants get numerous enough to begin to worry the bees. When this occurs, bees commence to whine, as I call it — that is, utter a fine sharp note with their wings. As the ants get bolder

the cry of the bees becomes louder and more frequent—so much so that I have frequently heard it fully fifty feet away. The ants usually worry the bees continually for several nights, when suddenly the whole colony of ants starts in on a battle royal, which continues for hours or even a day or two, until every bee is disabled or driven out. A great many of the ants will also be killed; but how the bees do this is a mystery to me.

When the battle has once been joined, the bee-keeper has a difficult task to save the bees; but this can usually be prevented. When the ants become plentiful enough at the hive to begin worrying the bees there is usually a trail of going and returning ants from their nest to the hive, and this can usually be located and traced to their nest, which, when found, should be left undisturbed until the following day, when all the ants will be at home. If the nest can not be found the first time trying, I try again and until it is found. As soon as the nest is found, or search for it is given up for that night, I sprinkle some insect powder on their trail near the hive; also wherever on or around the hive I can do so to worry the ants and not injure the bees. This will usually keep the ants from doing any more harm that night.

The next day, when all the ants are at home, I take a kettle of boiling water, tear open the nest, and, if possible, kill every ant and egg. If a few of them are left they are likely to gather together, increase in time to their former strength, and again attack that same colony of bees. Whenever the nest is found in a box or piece of wood that can be easily moved with all the ants, the easiest and best plan is to carry them into the chicken-yard, break open the nest, and the hens will gladly do the rest of the business. They are very fond of both ants and eggs; and they not only find them good to eat, but give their owner lots of fun watching the old rooster especially, kick and scold every time an ant bites one of his feet. I have had many a hearty laugh watching this performance.

These ants are a great pest here in Florida. They destroy in the aggregate a great many colonies every fall. I know of one entire apiary which was entirely lost, largely, I judge, from what I hear, by these ants. At the best they are a great nuisance because of their compelling the bee-keeper to remain at home watching them at a season of the year when nothing is doing in the apiary, and the apiarist could, but for them, be away on a holiday or some outside business.

Stuart, Fla., Dec. 9.

[This is one of the most interesting and valuable contributions to our bee literature that we have ever given in our columns in many a day. If a minute and accurate account of the work these bee-enemies as they exist in Florida has been given in these columns before I do not recall it. It not infrequently happens, however, that a matter that is of common knowledge with ourselves

is so common indeed that we suppose all the rest of the world is equally familiar with it. I suspect that a good many Florida bee-keepers are in ignorance of the work of this insect, the ant, particularly the manner in which it sets about with the utmost deliberation to carry out its diabolical scheme of robbing a colony of other insects of the product of their hard-earned toil. Criminality in the courts of human affairs is judged largely by the fact whether the crime under consideration was *premeditated*. In the case of the ants here described we shall have to conclude that their crime ought to receive the extreme penalty of the law, which, in this case, ought to be death. But the crime known and proven, apparently, in this case, is not so easily expiated as one might wish.

Mr. Poppleton supposes that the condition here described is peculiar to Florida; but I suspect that the same species, or one closely allied to it, is doing much the same destructive work in other States. Indeed, there have been various intimations of it by our correspondents at various times back. We should especially like to hear from all those who have any thing to offer.

I expect to go to Florida some time in February or March; and I hope Mr. Poppleton will give me the supreme delight of seeing chickens take care of those red ants, and the red ants take care of the rooster's legs. Perhaps it will be the wrong season of the year, but I really should like to see the "varmints" at all events.—ED.]

#### BUYING BEES.

Timely Advice on Buying and Moving Colonies, and Selecting Hives; Sugar Syrup vs. Honey for Stimulative Feeding.

BY W. R. GILBERT.

Some advice on this subject may not be out of place, seeing the sad havoc careless purchasers have wrought in many districts through the introduction of colonies affected with that fell disease, foul brood.

The safest course in all cases is, when making a start, to purchase new hives and colonies. If stocks are bought, it should be only at a period of the year when breeding is in progress, and when an examination of the brood will prove the healthy or diseased condition of the colony.

Presuming that disease is absent, we must endeavor to secure a strong lot of bees on fairly new combs, and with a queen not more than a year old. The combs should be almost wholly built of the small worker-cells. This fact should be noted at the time the stocks are examined, and any frames containing a superabundance of the large or drone cells would afterward be worked outward, and ultimately be removed from the hive by inserting in the middle of the stock new frames in which a full sheet of worker foundation has been securely fastened by wires.

The best time for moving stocks is in March, the month in which the bees are becoming very active. This removal stirs up the bees, and acts as a stimulus to breeding, after which the increased rate of egg-laying should be kept up by feeding or by the uncapping of sealed honey-cells, should there be a good supply of their natural food in the combs.

Beginners and others with a limited experience of work among bees require guidance on the important question of choosing hives. Wherever fairly extensive crops of flowers—acres in extent—of mustard, turnip, clover, and sainfoin are to be found, a ten-frame standard-sized hive is too small—that is, if large returns are to be secured, such as those of 100 lbs. more or less per hive—which is frequently at hand.

There is one great advantage in a hive of twelve frames. There will be plenty of cells for the use of the queen, with very little manipulating of the frames by the bee-keeper. In smaller hives the room for the eggs of the queen is greatly reduced by the cells being used for the storage of honey, and consequently swarming is almost sure to be induced.

Although twelve frames may be too many in some seasons, that does not matter; for, by the aid of a dummy, the size of the brood-chamber can quickly be reduced to ten or less, according to what is deemed best under the circumstances.

In deciding upon the size of the hive we must be guided by the size of the frame used; but if a large frame is chosen, a less number will give the capacity required in the brood-chamber by a strong stock.

The standard frame is the best to use if interchangeability is desired; in fact, whatever size of frame is adopted must be used in every hive throughout the apiary.

Their natural food, honey, if in a liquid form, is the best food for bees; but syrup is greatly preferable to candied honey, because, on the latter, bees often starve in the winter and early spring. Whenever it is advisable to feed bees for the purpose of keeping them alive during a time when their natural food is scarce, or for encouraging breeding, sugar in the form of syrup or candy must be given. The latter should always be used when the bees are confined to their hives, and syrup when they take their daily flights abroad.

Medicine Hat, B. C.

[The advice given by our correspondent is good; and especially do I approve of the suggestion to buy bees in the height of the breeding season, for then it will be possible to determine whether there is foul brood in the colony or not. Colonies bought late in the fall, early in the spring, or during winter, will not show evidence of disease, probably—at least not to a person unfamiliar with foul or black brood.

Instead of using a twelve-frame hive I would use a ten-frame, but two inches deeper than the regular standard Langstroth. This has the same capacity as a twelve-frame

standard Langstroth. Then it would be possible to use standard bottom-boards and supers—in fact, any thing and every thing that goes with the regular equipment except the frames. The twelve-frame hive does not fit any thing except the frame. The ten-frame Jumbo or Quinby can be used with any standard equipment in the yard of ten-frame width. Then, too, ten large or deep frames are better for brood-rearing, and take less time to handle than twelve-frame L. of equivalent comb surface.—ED.]

#### ALEXANDER AND HIS CRITICS.

Extracting Uncapped Honey; a Reminiscence of the Good Old Days of Father Quinby.

BY E. W. ALEXANDER.

It is with a feeling of pity that I read the criticism of several of my brother bee-keepers on some of the articles I have written for publication during the past year, especially from those who have sent their letters to you, warning you to beware of what articles you published from me.

Then there is another class of critics consisting of a few bee-keepers who are well up in their business, and are making money from their bees, but are so selfish that they don't want any one else to engage in the business. I receive some letters from them, asking me if it is not about time to stop encouraging beginners, and telling the honey-producers of the whole country how to increase their surplus. Now to this class I wish to say you are undoubtedly honest in your opinion in wishing you could prohibit any other parties from producing honey, except your particular friends. But I am also honest in wishing it were in my power to lend a helping hand to every bee-keeper in our whole land. You see it is only a case of a little difference of opinion; and from the numerous letters I receive from prominent bee-keepers all over the United States—yes, and some from different parts of Europe, endorsing my ideas, I am led to believe that my friends are becoming quite interested in my writings. I hope it will not be necessary for me to allude to myself again in this way.

The accompanying photo is a snap-shot taken while P. H. Elwood, whom I have known for many years as one of the broadest-minded and most impartial men I ever met, and myself were examining the markings of a colony of bees that were doing remarkably well in drawing out foundation into nice extracting-combs. This colony had at that time its fifth set of nine frames each of foundation drawn out into good combs; and after friend Elwood's visit they completed two more sets, making 63 combs in all. These combs were extracted about every six or seven days, when another set of foundation was given them.

Yes, we extract our honey about every six or seven days when the harvest is good, never using more than one hive of empty

combs on top to extract from; and, although this way of extracting is a perfect success with us, I can not recommend it to the inexperienced bee-keeper with none of the necessary appliances to ripen his honey artificially. But I do say that the man who has had experience, and has the necessary storage-tanks, can ripen his honey after the bees commence to cap it so that it will be just as good in every respect as if left with the bees all summer. In this way we not only get twice the amount, but we save our bees much labor and waste of honey in capping it over, and ourselves at least half the work in extracting.

Before a few of you commence to criticise this point I want you to understand that I never advised any man to extract and barrel up unripe honey, for, as sure as you do, you not only injure your own reputation but you do much harm to the whole bee-keeping fraternity; so, unless you have the proper place, and storage-tanks where it can be ripened as well as it should be, you had better leave it with the bees until fall.

I know I am one of a small minority on this particular way of producing extracted honey; but I would rather stand alone, and feel that I was in the right, than to be one of ten thousand and in the wrong. Please do not forget that we leave it with the bees until they commence to cap a few cells along the top of the combs. If the harvest is poor we sometimes leave it over two weeks before we extract, and run it into the tanks, where it always remains until it is good thick honey weighing fully 12 lbs. to the gallon. If I am not mistaken I think Editor Root sampled our honey in four different tanks last summer when he was here; also some that was in barrels ready for shipping, so I will leave him to tell you as to its quality.

When honey will granulate within three or four weeks after extracting, so it will not run through a large faucet, but has to be dug out of the tanks with a stout shovel in chunks like cheese, I don't see any need of letting it remain more than six or seven days with the bees.

Here is one question I should like to ask those who advocate letting their honey remain with the bees until it is nicely capped over. It is this: Will you please tell me where the profit comes in when you extract nice comb honey that is well capped, and can be sold for 10 to 12 cents per lb., then uncap it and run it through the extractor and sell the same honey for 6 or 7 cents per lb.?

If we could just reverse the prices of our honey I might see a profit in extracting nice comb honey; but as it is, and ever will be, to me it is the most foolish of all foolishness, and I doubt if any man in the United States can show and prove how he can enhance the price of extracted honey in the New York market, which handles more honey than all our other markets put together, a fourth of a cent a pound more than those large dealers can buy it for from other parts

of the world. It is all right for you to make all the handle you can over this point to your customers who take only a few pounds in a retail way; but when your product goes into the markets of the world in carload lots, then you will find that all this nonsense about leaving your honey with your bees until it is nicely capped over amounts to naught. The dealers want honey of good flavor, thick and heavy, that, as soon as the weather gets cool, granulates solid, so if the head of a barrel should be knocked out it could be laid down and rolled across their storehouse the same as a box of cheese with the cover off. Sell them honey of that kind and they will not care whether it was extracted every day or left with the bees until Christmas.

Now I hope you understand how we produce our extracted honey. In regard to selling it we usually have an advertisement inserted in some of the bee journals during September, stating the amount we have for sale, and its price. In this way we frequently obtain from  $\frac{1}{2}$  to 1 cent per lb. more for our honey than we could if we did not let the public know what we had and its price. It may seem a small thing to some of you,  $\frac{1}{2}$  or  $\frac{1}{4}$  cent per lb. on a crop of honey; but when you figure  $\frac{1}{2}$  cent on 30 tons it comes to \$300. That pays quite well for an advertisement that costs less than five dollars.

One party early in October anxiously took the remnant of our crop, and paid us cash down \$1144.89. Since then we have received several letters from old customers wanting from one keg to a carload of our extracted honey, so I don't think it would be any detriment to some bee-keepers if they followed in a few of the tracks we make in producing and selling large quantities of extracted honey. The only honey we have ever had any trouble in selling was our clover honey. This was caused by our bees getting a little from buckwheat, which comes up with the oats where buckwheat was raised the year before. This blossoms in June, and the bees get just enough to give our light honey a dark shade. This was one of the reasons why father Quinby moved from this buckwheat section many years ago. He preferred to keep bees where his clover honey would be of the finest quality.

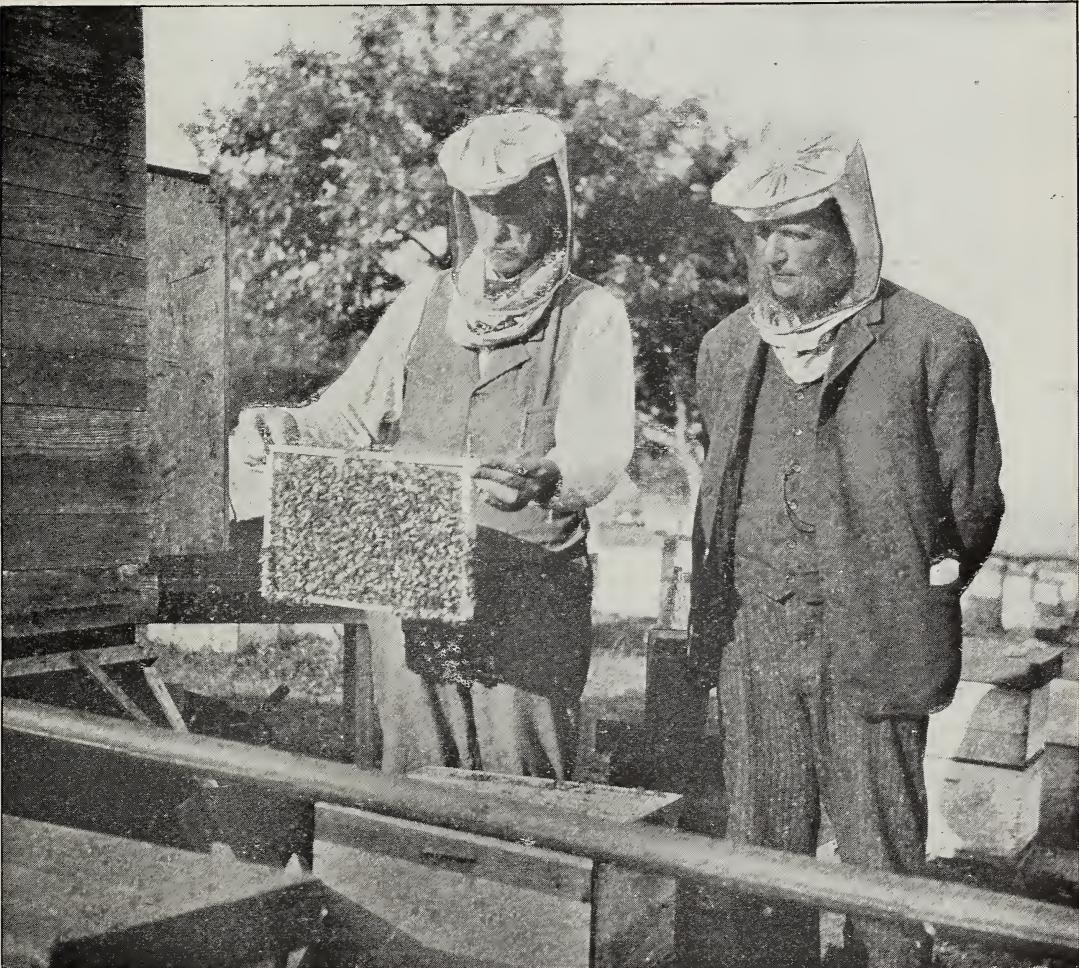
How time does fly! I can hardly realize that it is now over thirty years since I looked into his smiling eyes and took that friendly hand that was ever extended to encourage and help the inexperienced and unfortunate. His name, with that of that prince of bee-keepers, Capt. Hetherington, will be cherished and honored as long as honey-bees are kept by man. When we used to meet in convention, something over thirty years ago, with Prof. Cook or father Quinby in the chair, and could look around the hall and see Capt. Hetherington, L. C. Root, A. I. Root, P. H. Elwood, Chas. Van Deusen and his father; Doolittle, Birmingham, Hoffman, and my father, with a score or more of us lesser lights, we had good reason to feel proud of our meetings, and I

assure you that, as friend Elwood this fall talked over those conventions with me, and we recalled to memory the valuable advice Capt. Hetherington then gave us so freely, it was with a sense of loss and sorrow that we realized he could never be with us again. No, my friends, those of you who never had the honor of meeting him can hardly realize as I can that, of all the noted bee-keepers of America, we have had but one Capt. Hetherington. Hundreds—yes, even thousands—of dollars he spent in testing and perfecting many things that we to-day are reaping much benefit from. Then let us follow the example these kind-hearted men have set, and encourage the unfortunate with a cheering word until they have a bright and happy future.

Delanson, N. Y.

[Yes, it is true that I observed that Mr. Alexander was extracting without using an uncapping-knife; but I also saw that he allowed the combs to stay on the hives until the bees began capping. The honey, when thrown out, seemed to be very thick and rich. I sampled it as it came from the ex-

tractor and also in the tanks he refers to. While I am not a connoisseur on buckwheat honey I should say that, so far as ripeness was concerned, it was excellent. But I do not believe that the *average* bee-keeper had better extract from uncapped combs; for I suspect that the conditions in Mr. Alexander's locality are such that he can do so, while the rest of us ordinarily could not do it without making a lot of dissatisfied customers. I may in this connection say that a few bee-keepers, notably J. F. McIntyre, of California, who, by the way, has 500 colonies in one apiary, does a part of his ripening, or did do so, in open tanks, although when I was present at his yard he was doing considerable uncapping. He once sent us samples of his bee-and-tank-ripened and bee-ripened honey, and asked us to tell which was which. So far as we could tell they were equal in quality and body, but, taking every thing into consideration, I think it is a safe rule to advise that the *average* bee-keeper in the *average* locality let his extracting combs become fully capped before extracting. In all the lake regions I am sure it is imperative.—ED.]



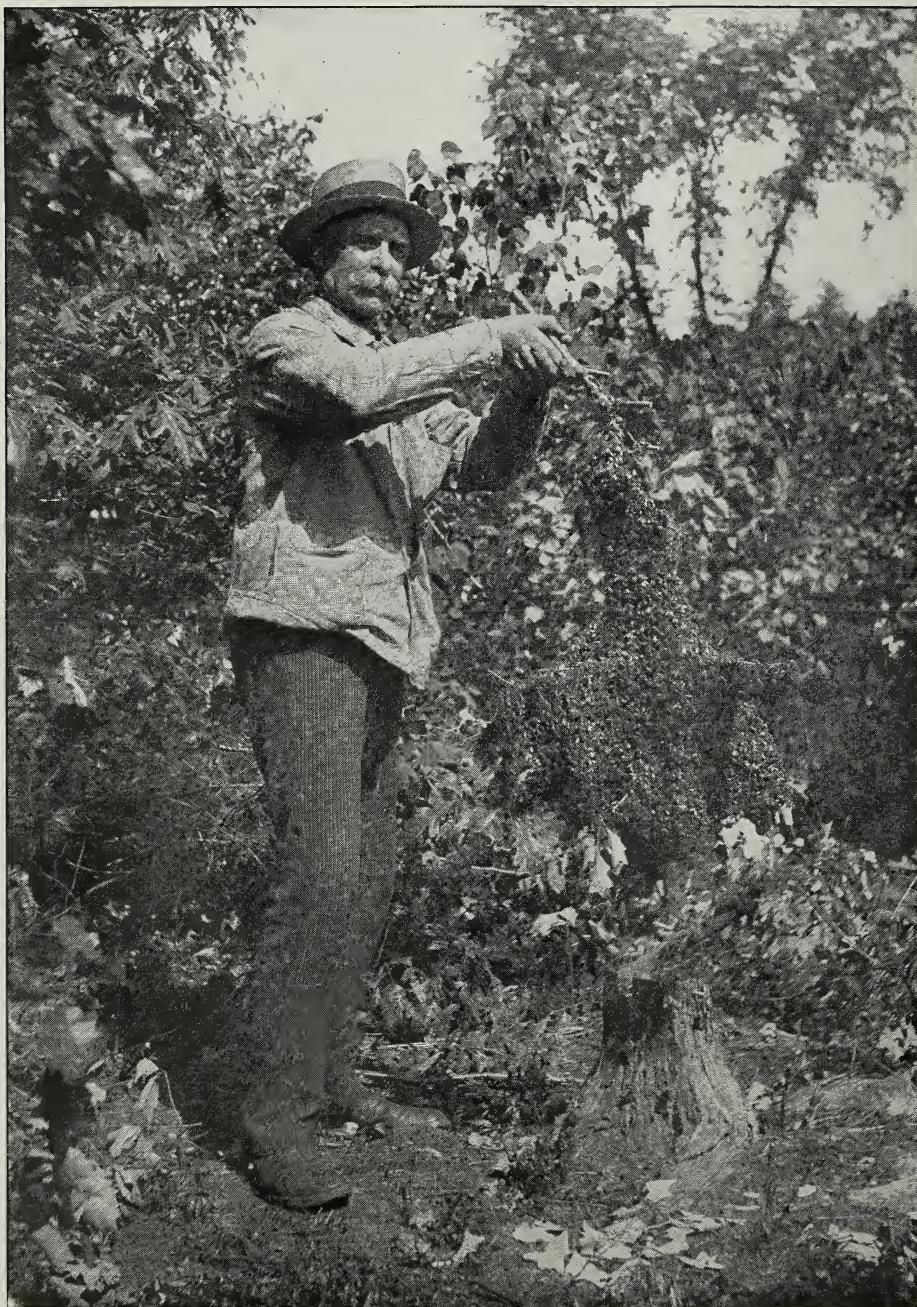
E. W. ALEXANDER AND P. H. ELWOOD LOOKING OVER THE ALEXANDER BEES.

**THE THIRD-PRIZE PHOTO OF A SWARM OF BEES.****Will Several Swarms Cluster in the Same Spot?**

BY F. P. BRIGGS.

Concerning the swarm of which I sent you a picture, I will say that I keep only a few colonies for pleasure, and do not clip the queens' wings; for, to tell you the truth, I enjoy the fun of chasing and hiving a swarm of bees; but I don't think I should if I had

as many colonies as Mr. Alexander. This swarm gave me more fun than any I ever hived. They came out one bright sunny day about eleven o'clock, and clustered on a scrub oak. It was a big one, and I had quite an audience watch me hive them (neighbors, you know). I placed the hive near the old one, put a sheet down, and dumped them. Before I did that I saw the queen, and she was a nice large one. They began to run in, and soon most of them were in the hive. But, lo! there was a rear, and out they came

**THIRD-PRIZE PHOTO OF A SWARM OF BEES, BY F. P. BRIGGS.**

and back they went into the old hive. You can imagine my feelings. I put away my new hive, disgusted. In just a week, and at the same hour, they came out again and clustered where the bushes were so thick that I had to cut a path out so that I could carry them to the hive. This time I put the hive *back* of the old one, and with another audience I shook them on to the sheet. Again they went in, and out they came and back into the old hive. Say, you don't know *just* how I felt. They say it relieves a man's feelings sometimes to swear. I didn't do it; but I put my brand new hive away and went in to dinner. At one o'clock, out they came again and settled on a bush near where they did before. This time I put the hive at the front of the house, where they could not see the old one, and said, "The third time never fails." Then I ran them in again. As they ran across the sheet I said to the man who was taking the picture, "Good! there is the queen."

"Yes," he said, "there is another;" and my wife said, "Why, there is another." There were *three* queens. If this had been an after-swarm it would not have surprised me; but this was a very large swarm, and filled a ten-frame hive. I think I got my money's worth of fun this time.

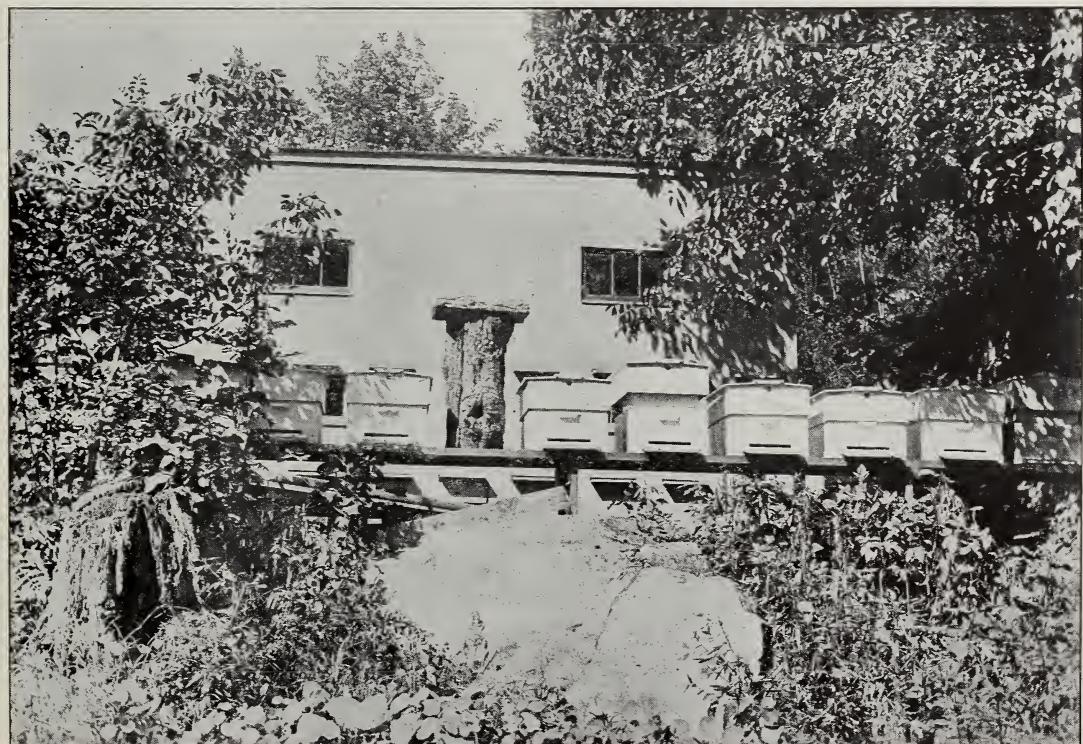
I sometimes wonder if bees are attracted by scent so that they will cluster near or on the same spot where a swarm has been before. I have a Page wire fence covered with woodbine around my place, and one

year every swarm I had clustered on the same post; and what a job I had getting them out of that tangle of wire and woodbine! Still, with my few colonies I do not think I would give up the fun of catching them.

Ayer, Mass., Dec. 23.

[You did not send us the picture of the bees running into the hive; but the one showing the swarm of bees itself on the limb is excellent. But let me tell you, friend Briggs, after you have had a few more swarms, and after you have had a substantial increase in numbers, you will be very glad to clip your queens' wings.

Will swarms cluster repeatedly on the same spot? Indeed they will. Probably the scent of the previous swarm remains. Taking advantage of this fact, many years ago a bee-keeper got up an automatic hiver that worked on the principle of the old-fashioned well-sweep. He hung a cage containing a queen on the end of the sweep to attract the first swarm. After that, he reasoned, other swarms would cluster in the same spot, attracted thereto by the scent of the previous lot of bees. This well-sweep was pivoted in such a way that, when there was a cluster of three or four pounds on the end, it would gradually topple over, drop to the ground, bump on an open hive, dumping all the bees therein. It was very pretty in theory, but practically, I believe, it did not do very much in the way of hiving bees.—ED.]



APIARIAN LABORATORY OF DR. EDWARD F. BIGELOW, STAMFORD, CONNECTICUT.

**A LABORATORY DEVOTED TO THE EXTENSION OF THE EDUCATIONAL INTEREST IN THE HONEY-BEE.**

BY EDWARD F. BIGELOW.

From various articles by me and references by you to my work in GLEANINGS, I surmise that your readers will be interested in views of the "Home of the Educational Bee." I therefore send three photographs.

The first picture shows the aparian laboratory. There are eighteen hives within the building, and fifteen in "The Little White City" in front. (Not all the outdoor hives show in the photograph.)

The natural surroundings are exceptionally favorable and picturesque. Growing from the old stump at the left is a clump of several trees and shrubs — walnut, ash, chestnut, sumac, and others. At the right is a picturesque row of wild-cherry trees, sumacs, and evergreens. An old wall is covered with Virginia creeper and a variety of other vines. A ledge in front and a forest in the background make a most ideal location for an apiary.

The second is a corner view of the same, showing, at the left, an outdoor photograph-gallery. In another (building the general biological laboratory, in the same yard) is a well-equipped indoor photograph-gallery, and various appliances for original research. In the distant left and rear is a precipitous ledge and forest.

The third view shows the interior of the

laboratory. In the immediate rear of this are eighteen colonies, most of them under a variety of methods of direct observation and experiment.

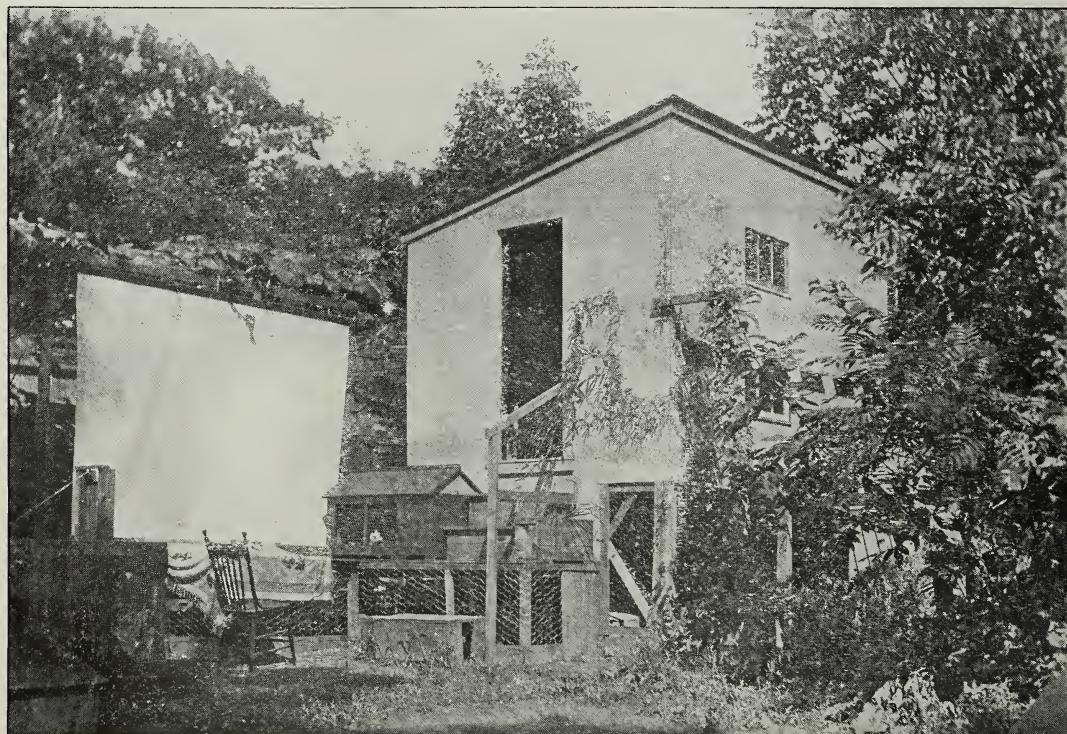
So far as I know, this is the only extensive apiary for observation and experiment from the *educational* point of view. I do not expect to discover any thing new as to methods of producing more honey, nor to sell it at a higher price. Neither do I expect to excel Cheshire or Cowan in exploring the internal regions of the bee. Mæterlinck has set a higher standard than I can hope to attain in philosophizing regarding the wonderful life of the bee.

But one thing I hope to do; and that is, to extend the educational interest in the honey-bee — to advance it as a nature-study topic more than has any one else.

— Stamford, Ct.

[Our readers will remember that Dr. Bigelow aroused a considerable amount of enthusiasm among the students at Wooster this last summer, and that he brought a large number of them to Medina to look over our apiaries and factory buildings. A glance at the photograph of that group, p. 914, will be sufficient to show that he is capable of arousing interest in this his favorite study.

Being editor of the Nature and Science department of the *St. Nicholas Magazine*, he is, of course, very much interested in nature study. Furthermore, he believes that the subject of bees presents an extensive



CORNER VIEW OF APIARIAN LABORATORY.

field for this study, as is shown by his many articles along this line.

He is also the inventor of the Educational hive, described on page 476; the Pearl Agnes hive, for teachers and young folks, and the Lecturer's Hive, for science teachers in the class-room and for lectures before popular audiences. These hives are now sold by dealers in aparian supplies. All of these ideas he has given to the public.

He writes that he desires correspondence with young folks, and nature-study or science teachers interested in bees.—ED.]

#### ARE SECTIONS DETRIMENTAL TO THE HONEY MARKET?

An Argument Against the Selling of Chunk Honey.

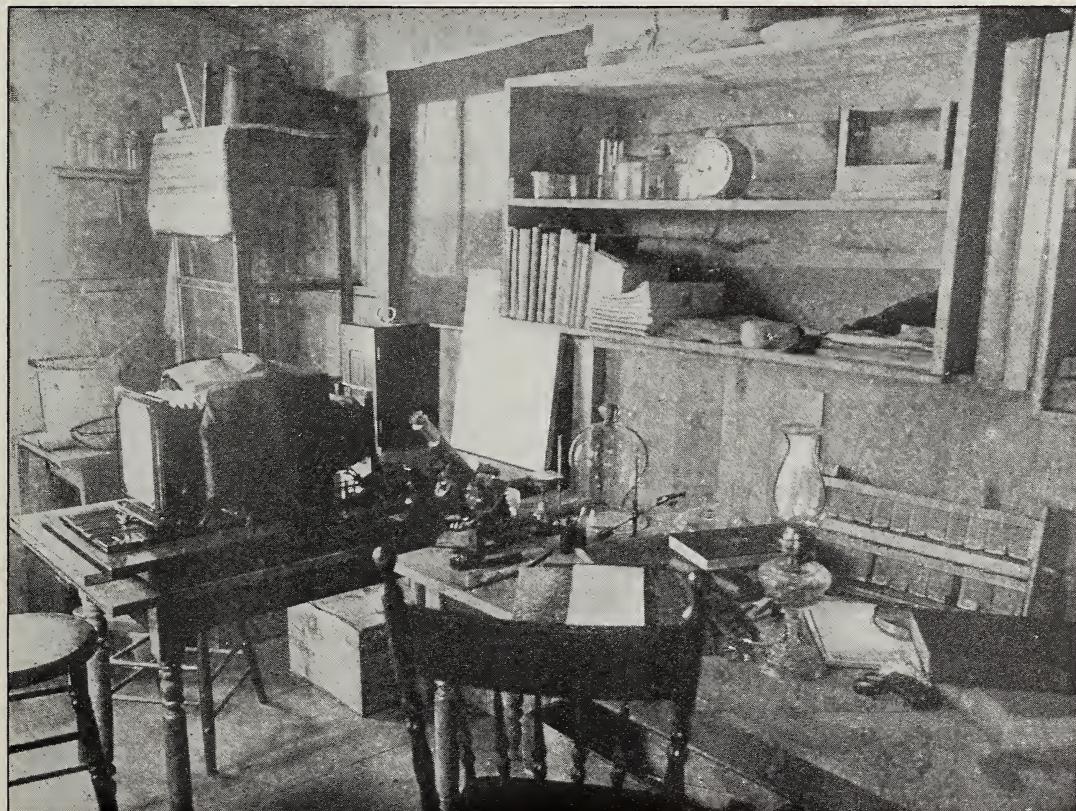
BY G. C. GREINER.

While commendable efforts have been made by the leading members of our profession to improve the honey market, and while co-operation has been the subject of discussions, and leagues and associations have been formed for the purpose of elevating the bee and honey business on an equal basis with other leading industries, it would seem as if certain ones of the chunk-honey advocates were trying their very best to injure the trade of the section-producer. I am, and have been for the last five

or six years, a great deal in close contact with the retailer and the consumer, and I know from daily observation I am not exaggerating in saying that our little one-pound-section has done more to increase the sale of honey than all the other inventions the bee-keeper's genius ever produced. The welcome acceptance of the convenient and attractive section by the public in general is the direct outgrowth of education and refinement, and these again are the natural consequence of prosperity.

A little historical sketch may serve to illustrate the situation.

In my younger days, on a certain occasion I was invited to take dinner with a family of the old pioneer stock. When dinner was ready to be served, we found a large soup-dish, similar to those crocks which are now used by some dairy people for setting milk, in the center of the table. It was filled with a steaming vegetable stew, and presented to us hungry would-be participants a very tempting appearance. Each one of the company was provided with a similar smaller dish and a spoon, and for occasional use a few knives were on the table. A large soupladle, which the head of the family used to fill up those individual dishes as they were passed along, comprised the table setting. Besides the stew a loaf of bread lay on the table, which was passed around to let each one, who so desired, cut a piece according to his appetite. Whether there was any



EXPERIMENTAL AND RECORDING SECTION OF APIARIAN LABORATORY.

butter on the table or not I do not now remember; in fact, it is so long ago that I can not recall all the particulars. But this matters not. It will bring out my points just the same.

Now let us visit these same families to-day — that is, their children's and children's children's families, for the old people, blessed be their memories, have gathered at the river long ago, and what do we find? Their extension dining-table is set in up-to-date style. China ware in its different lines is complete; plates, cups, and saucers, vegetable and sauce dishes, cup-plates, individual butter-dishes, etc., are up with the times.

In the line of silverware we also find a full assortment: Knives and forks, soup and tea spoons, butter-knife, sugar-spoon, and many things which we might call superfluous. Their daily diet is in harmony with the table outfit. Fancy delicacies, pastries of all descriptions, sauces too numerous to mention, are served more or less at each meal. Look where we may, every thing the house contains gives striking testimony of progress and refinement. And what has brought all this change about? Simply education.

As the old people prospered and their financial circumstances allowed them to do so, they sent their children to high or boarding school. Here they came in contact with people of more modern ways of living and refinement; they soon forgot the primitive customs of their childhood days; and when they returned home, after they had finished their schooling, these adopted ways of refinement went with them. If we should advise these people to go back to the practices of the old home because it was a cheaper way of living, would they be willing to do so? The reader can draw his own conclusion.

The difference between the use of chunk and section honey is analogous to these two styles of living. In the days of sulphur and brimstone, when this old practice was the usual means of obtaining honey for the table, the demands of the people were easily complied with. They considered honey in any shape, cut out of a brimstoned hive, a dainty morsel. But times have changed. Every up-to-date household, where comb honey is used at all, prefers it in small sections, because it is neat and attractive, and convenient to handle. By the way, let me emphasize right here that many more families would use it if it were brought to their doors and offered to them.

On page 874 Mr. Bohrer says: "Chunk honey in shallow frames can be put on the market in *almost* as handsome shape as it is in the section." I agree with him. He admits that it is in not quite as handsome shape as sections. Any bee-keeper, who deserves that name at all, can find ways and means to get honey in perfect condition to market, in whatever cumbersome shape it may be. But what is the consumer going to do with one of Mr. B's shallow frames after he has bought it? How can it be taken home, and what can be done with it after it is taken home? If it is not bruised and made to leak

on the way home it will certainly leak badly after the first piece for the table is cut out. To catch the drippings the frame has to be put into a pan or a similar dish; and if the frame is somewhere near our common brood-frame in width, one end will rest on the rim of the pan, and the contact will cause it to leak here too. Then, to keep the honey from running down on the outside, all has to be cut out of the frame and placed in the dish. After this cutting and slashing, what appearance will the next piece present that is fished out of this mixture and put on the table?

When we compare the convenience of neatly done-up packages of one, two, or more sections each, as I carry them, is it to be wondered that customers, after buying sections a few times, would not be bothered with chunk honey, even if they could buy it at reduced rates? The expense part receives, as a rule, very little consideration.

I hear the expression almost daily, especially when people inquire for comb honey, and I try to persuade them to buy extracted because it is cheaper: "We do not care for the cost; we like comb honey better, and are willing to pay for it." But when people do object to the price of comb honey I generally sell them extracted.

The claim that more honey could be sold in these large frames than in one-pound sections may hold good in some cases when selling to people in rural districts. Farmers, for instance, who live in the more secluded localities of backwoods sections, and who are accustomed to lay in a year's supply of eatables, may occasionally buy larger quantities. But sales in the country are of too little importance to affect the honey market. The outlet of our honey is the cities, and it is to the honey-producer's interest to cater to the wants of the city people. Having the privilege of calling at the store or market any time they need any table supplies they seldom buy more than a day's ration. Scarcity of store room, convenience in buying, and weekly pay, are probably the cause of this.

I have many customers who call regularly at my wagon every week or two for their supplies. One lady in particular generally comes with smiling face and says, "Well, Mr. Greiner, I am after my Sunday-dinner honey again." She has kept this up all summer; and if we could induce every family to use honey, even at this apparently limited rate, and, as I said before, we could take a long step in that direction by offering it at their doors, what a tremendous impetus it would give to the honey market! The entire honey crop of the country would not go half way around.

To be continued.

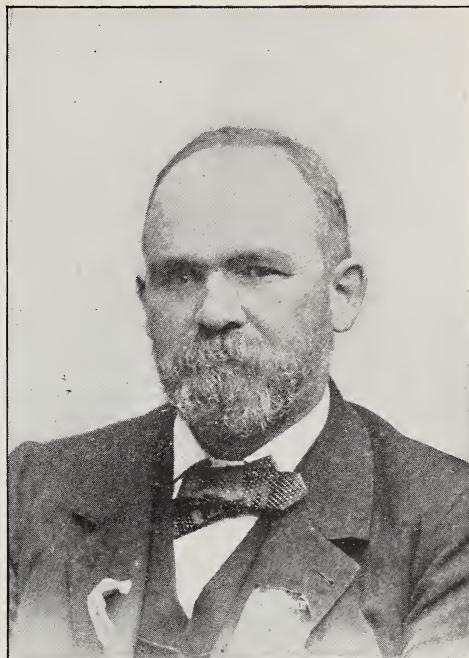
[Dr. Bohrer does not represent the feelings of the bulk or chunk-honey producers, I feel sure. That there is a demand for this honey in certain sections of our country can scarcely be doubted, and those who seek to meet it are, many of them, producers of section honey.—ED.]

## HERMAN HOLMES.

The Freckled-faced Boy who has Held a Responsible Position with a Big Trunk Line Railroad for 33 Years.

BY A. I. ROOT.

Between forty and fifty years ago, before there was any railroad within fifteen or twenty miles of Medina, every thing had to be hauled into our town by teams; and with the "Medina mud," such as we have every spring more or less, there were some terrible times about getting things, or, for that matter, getting anywhere. There were stage coaches running in different directions, or some sort of substitute for a stage coach, but a good many times it was pretty nearly an all-day's job to get to the station, eighteen miles away. During one of these slow and wearisome trips I noticed a bright young freckled faced boy who was driver of the coach. About the first I recollect of him, some ladies were getting into his vehicle. He turned the wheels so as to give them the best chance possible to get in, kept their clothing away from the muddy wheels, then proceeded to tuck them up warm and comfortable. If I recollect rightly it was a cool March day. There was a little "skim" of ice on the puddles, and he remarked to the boy who was helping that they needed some more robes and blankets to make the passengers comfortable. Finally he put off on a run himself after the needed things. Somebody said he would be late about getting started; but he remarked that he wanted to have his passengers in good shape and comfortable, adding that the roads were so bad

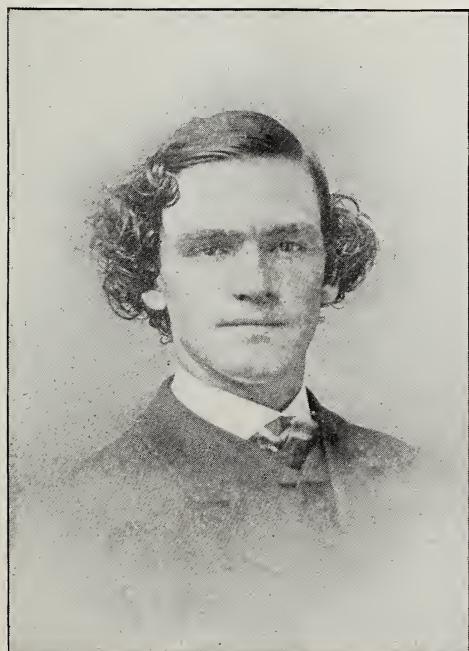


MR. HERMAN HOLMES, TRAVELING PASSENGER AGENT OF THE L. & N. R. R.

they were going to be a good while out in that March wind. He was not very well clad himself, but he did not seem to mind that nor think any thing about it. His special care was for the passengers that he was to pilot safely to their destination; and he was so good-natured about it that his vivacity and cheerfulness almost made his load of people forget the mud and the piercing wind.

I used to see him occasionally after that. His anxiety to do every thing well, and his enthusiasm in combating obstacles in the way of weather and bad roads attracted my attention.

By and by, when a railroad got into Medina he was one of the first to get a position. His peculiar trait in life seemed to be a desire to help *anybody* who was *traveling*; and with his assistance the passengers almost always "got there," to use a familiar slang phrase. In order to advise intelligently everybody who wanted to go anywhere, he began to make a study of railroads, railroad guides, maps, and railroading in general. About thirty-three years ago he got a berth as passenger agent on the Louisville & Nashville Railroad, and he is there yet. When I want to go anywhere I tell him just what my wishes are, and in a twinkling the railroad guides and maps are spread out on a table before him, and in a brief time he gives me a written schedule telling exactly what points I shall reach at such a time, and advising me what to do in case the trains are late, or if I miss a train, etc. One remarkable thing about it is he almost never makes a mistake. I remember once while in Cincinnati my route got tangled up a lit-



HERMAN HOLMES AT 25.

tle. I handed my paper to the ticket agent at one of the big depots. He looked at it, then said something like this:

"Well, now, I do not quite catch on to this. It is not exactly according to my understanding; but that man Holmes never makes a mistake. Whatever he does is done right."

He finally found out that it was just so in this case. Holmes knew some things about the ticket agent's business that he did not know himself.

A short time ago one of the newspaper reporters made a cartoon sketch of my friend Herman. It was comical, without doubt, but at the same time it was remarkably truthful. Shortly after it appeared in print, the following letter came to Mr. Holmes:

THE DELAWARE, LACKAWANNA &  
WESTERN RAILROAD COMPANY.  
OFFICE OF DIVISION PASSENGER AGENT,  
Buffalo, N. Y., Oct. 14, 1905.

*My Dear Friend Herman:*—

I thought it would come. I expected to see your picture in the rogues' gallery, but not so soon. The article is a good one and very interesting. Of course, no one can tell how much of it belongs to you and how much to the writers. It is a splendid advertisement of your road and a tribute to you personally. I want to congratulate you, not on the article, but on the fact that a sober, industrious, honest member of our craft has been kept in harness by one company so long. It has been thought and preached since I can remember, that, to be a successful passenger agent, one must drink, smoke, and carouse—sink to a lower level than a gentleman should. You have taught us by your example that this is not true; that the better gentleman a man is, the better passenger agent he will make. I don't mean a man must be a preacher, but he must be clean, honest, and aggressive, depending upon making friends upon his own personality rather than by spending his company's money in carousing. You are the oldest apostle of the new and better school, therefore I salute you.

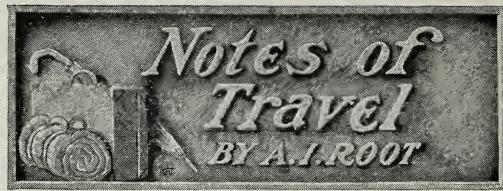
With kindest regards and best wishes, I remain  
Yours sincerely, FRED P. FOX,  
Division Passenger Agent.

Now, friends, I am ready to tell you why I have written up the freckled-faced boy. It is this grand declaration by one of the prominent railroad men of our great country. Let me repeat the last sentence: "You are the oldest apostle of the new and better school, therefore I salute you."

I have not told you before, but I will tell you now, that Mr. Holmes through all his career of almost half a century has neither used beer nor tobacco—has never even smoked a cigar for the sake of getting business; and yet a good many people would say he would have to do it in order to succeed.

I hope this letter will have some influence over some other freckle-faced boy who is thinking that perhaps he ought to learn to smoke cigars. It is indeed true, as Mr. Fox says in the letter of congratulation, it is the *newer and better school*.

By the way, it just occurs to me to mention that a Medina girl took a shine to that freckle-faced stage-driver away back in the time when he used to drive a coach through the muddy roads around Medina, before we had steam and electric railroads. We submit two pictures, one of the freckle-faced boy when he first started out, and the other one taken some forty years later.



#### BEES ON THE ISLAND.

As soon as I landed we hastily chose a location, and with some anxiety opened the entrance of the two-frame nucleus containing the Caucasian queen. Although I waited and waited, not a bee came out; and, in fact, not a sound of any kind issued from the little hive. It took considerable time to draw the wire nails and get the cover off; but when it was removed, there were the gentle bees looking as unconcerned as could be. Instead of being all dead, as I feared, there was hardly a dead bee in the colony. After they had rubbed their eyes and discovered it was really summer in December, they ventured out and took a fly; but there was no uproar at all, and they seemed to have borne the bumps of their long trip in the cars in a most remarkable way. As the queen had been laying almost ever since we started, there were eggs and brood ready to start queen-cells.

While they were taking a flight I looked over the five colonies already on the island. Three were in rude Langstroth hives, and the frames were exactly our size, luckily. Two were in what I call "gate-post" box hives—boxes about a yard tall, and perhaps eight inches square inside. The top is nailed on loosely; and when the owner wants honey he takes it off and digs out a panful, more or less, say down until he finds brood. As one of our Langstroth hives was two-story we put a few empty combs in some extra hives, moved the box hives back, putting these empty hives in their places. As there was scarcely a cell of brood in the whole five hives, and hardly a cell of *honey* in one of the box hives, we had easy work transferring. Some heavy roots of a live-oak tree were just in front of where the box hives stood, and Mr. Shumard bumped nearly every last bee out of the old boxes by striking a corner of the hive repeatedly on those oak roots. I invented the plan, and friend Shumard did the work; so when we get it patented we are going to "go halves" in selling "rights."

After the bees were all out friend S. got his carpenter saw and sawed the combs neatly out of the old tall boxes, sawing in from both top and bottom. Mrs. Root cut the flat sheets of comb so neatly as to fit the empty frames. No clasps, wires, or sticks were needed. Of course, I "bossed" the whole job (bosses are very important personages *nowdays* you know). One hive contained some thick combs of sealed honey; and as it had to be "splintered" the job was turned over to me. About this time robbers

got in *their* work so lively that all hands adjourned to Mrs. Shumard's kitchen, and the task seemed to fall "kind o' naterally" on the two women to clear up the muss.

There was very little brood in any hive, as I have said; and in one we transferred, not even an egg could we find, although there was a great plenty of as gentle and nicely striped Italians as one could ask for. As we found no queen we gave them Caucasian eggs; but as no queen-cells were started we looked more carefully and found a beautiful Italian queen. As there were plenty of bees we divided them, giving the eggs to the queenless part, but still no queen-cells. A second search revealed a queen in each half of the divided colony. We killed the poorest-looking one, and then got queen-cells all right. Now, am I correct in deciding that this strong colony, when transferred, contained *two* virgin queens, own sisters? I feel sure neither one was the old mother; and I think neither was fertilized, as we could not make them lay, even with stimulative feeding. We gave new brood three times before we got queen-cells. My old and *tried* friend Dr. Miller is reading this, I take it. What does he say? It is pretty certain there are no drones on the island, and I presume we can't go on with queen-rearing until we can secure drone brood. We have placed drone comb in our strongest colonies, and have been feeding outdoors to push brood. We are getting some pollen, but, I am sure, not enough. This morning, Dec. 28 the bees are getting so much honey I do not think we shall need to feed any more. Our island is about 200 yards wide, as you have been told; but it is nearly *ten miles* long. The width is quite regular the whole length.

#### HOW TO HANDLE BEES WITHOUT VEIL, SMOKE, OR GLOVES.

Aren't you glad, friends, I have started to "teach school" again—I mean "bee-keeping" school? Well, I am managing nicely here on my island, without the above-mentioned inconveniences, and if you don't succeed with my instructions perhaps you will have to get an "island" too. Our five colonies are blacks, hybrids (vicious ones too), and Italians. At transferring-time they got to buzzing around in that snarling way every time I opened a hive, and I remembered what Ernest said about open air feeding. A little bag made of thick sail cloth was tacked to a palmetto-tree, and into this the syrup was poured. As it leaked some, a saucer was placed under it with some little sticks for floats. The ugly bees soon found this; and when I wanted to open hives I poured a little sugar and water into the bag. Burr-combs and propolis were fearful in those old hives, and I went at the remedy. I found one extra old hive. I scraped the inside, then spaced the back and front end *just right*, and nailed it thoroughly. Then I put this in place of the first hive; and as I removed each comb I scraped off all propolis and all burr-combs. If dimensions were not "orthodox" I made them so—trimmed pro-

jecting ends, if need be, and drove in staples, so every frame went nicely in my hive-body that was right. When I got through the five-colony apiary every comb could be picked up with one hand, if need be, and not a bee crushed or pinched. There are Hoffman frames, old-fashioned frames, and even a few metal-cornered frames; but we have made the *outside dimensions* all exactly alike. You can hardly imagine what a relief it is to me (and to the bees) compared with opening hives as I first found them.



This is to be a *Home* paper, dear reader; and when I use the words "dear reader" I am well aware it means a "whole lot" of you. May God bless each and every one of you—yes, exactly as he has recently blessed myself and the dear wife. I am very happy to-night, and I long to tell you why, so that you may find happiness, and that your hearts may be full of thanks and praise to God, exactly as ours are. It's a long story I have to tell, so let us get at it.

Last fall, when we were so happy at the cabin in the woods in Northern Michigan, a letter came from Ernest suggesting that we take a trip to Florida and try what could be done at queen-rearing in the extreme southern part of the United States during the winter. After thinking the matter over I decided I should like to try it; but the dear wife objected to the long trip, and she also felt blue over the prospect of being again taken away from the dear children and grandchildren (especially that "nameless" last arrival she is just beginning to love so much, *particularly* as he seems to have already learned to love her just as much in return). I, however, felt sure that God was calling us off among strangers to learn some new lesson he had in store for us. When I received that letter from brother Shumard (see page 1353, Dec. 15), I said it was God's providence that prompted him to write it; and to-day, Jan. 12, after having been with him and a part of his family for almost a month I feel more sure of it. You will remember he suggests a "cabin in the woods" on his island; but Mrs. Root was so averse to putting a lot of money into *another* cabin, and still another lot into an outfit for house-keeping, that we tried boarding at a hotel for a couple of weeks. Now, the hotel is a very good one for the price (\$14.00 a week for us two); but as it was a mile away from my work, and for other reasons, Mrs. R. finally, although somewhat reluctantly, consented to building some sort of a "home"

where "we two" could "keep house" once more after our own fashion and tastes.

As Mr. McAuley, the son-in-law, is a carpenter I engaged him to build it. But before we had really decided, the Phantom (the weekly boat) cast anchor near us, and the captain said if we could give him the order at once he would have all the lumber on hand in a week or less. As he was ready to sail, a bill of materials was made out very hastily. Our carpenter thought a very good temporary Florida cottage could be put up for \$75.00 or \$85.00; but several things transpired very soon to induce us to put more money into it. First, the carpenters neglected to specify low-priced lumber for a temporary residence; but he gave the captain verbal instructions not to send No. 1; but he forgot all about it; and, of course, the lumber folks gave us the very best, or at least the *price* was for the best. Secondly, when we began discussing the matter more thoroughly I said to Mr. Shumard, on whose land we were to build:

"Look here, friend S. Mrs. Root thinks *she*, at least, will never come back here. Now, if I don't either, will you take the building off my hands at, say, half cost?"

Mr. S. has been here only two years, and has a house built only temporarily at first, so he responded at once:

"Yes, sir, and more too; that is, if you two use it only this one winter."

At this Mrs. R. took courage, for such hasty investments a good many times can not be turned into cash again for even half cost. As he is a carpenter too, or used to be, we modified the plan so that it might suit him better in case it became his home. As planed lumber ordinarily costs only a little more, we decided to have all planed on both sides and both edges. This not only makes a much better-looking house, but the carpenter can work a deal faster by having all stuff dressed to exact dimensions. After Mrs. Root's experience in the cabin with a roof made of cull shingles she was very emphatic that we should have a good roof overhead; but when that was settled she held down our expense from beginning to end. The lumber for a building  $14\frac{1}{2} \times 22\frac{1}{2}$ , with a porch on one end  $6\frac{1}{2} \times 14\frac{1}{2}$ , cost for materials less than \$100. The carpenter work was less than \$50.00, and we have so pretty a little cottage that I look forward with much pleasure to the time when I can give you a picture of it. Mrs. Root declares *this* one shall be "the *cottage* in the woods," for it is too pretty to be called a cabin.

Now, friends, if it isn't plain to you it is to me *why* God called us two to this work. Thousands have homes that are too large and too aristocratic and too *costly* to be a home in every sense of the word. The *home* should be where happiness is to be found, more than and above any other place; and new *expensive* homes often bring unhappiness. How many people look back at the first home in early married life, and tell you the happiest hours they ever knew were in that first humble home! Mrs. Root has oft-

en got so wearied in caring for our home that cost several thousands she has begged to have it sold or given away in order that she might have a little one, that costs only something like this one, say.

Again, there are other thousands whose homes lack simple and inexpensive comforts, but they don't seem to know how to make a little money go a great way. You know I have been studying this matter of homes for years, and I feel sure, therefore, I can give you some helpful suggestions. The carpenters and myself worked together during the whole two weeks like a lot of brothers. There was hardly a board or timber put in place without my eyes on it. The young man worked perhaps more rapidly than Mr. S. and myself, but he always seemed pleased at our suggestions from our riper experience. To be exact, I did very little work with my hands; but my mind, and especially my *tongue*, were very busy.

"Wouldn't it be better to put that board the other end up, so as to cut out that bad place?" or, "If you will lay down your boards between those two windows you can space them so as to avoid cutting," etc.

Some mistakes were made; in fact, I have never seen a house built without mistakes; but I helped to avoid them, and often studied out plans to remedy the results of mistakes. Some may suggest that a *plan* should have been made beforehand; but this little structure hardly required it. Besides, I have seen so many *expensive* blunders with high-priced architects, perhaps I have lost faith in them. The man who builds a home should be on hand with the builders *every minute*, and he should take *his wife* along too. She will have more to do with the home than anybody else in the world, and she knows how things should be better than any other one. These two should spend much time in planning beforehand, but they should bear in mind that various things may make it quite necessary to modify these plans.

We were very anxious to get our high-priced seasoned lumber in out of the weather before it got a soaking from the very frequent but (at this season) unusual rains along about the first of the year. All hands were at work sometimes before daylight, and kept at it as long as we could see. During the building, Mrs. Root and I were cared for by the two families, and the alarm clock went off every morning promptly at 4:30 A. M. (in January, mind you). The rain held off until just as we were laying the last dozen shingles, and all of our nice lumber was safe. As there was no other shelter on the island, there was quite a shout of triumph among the shinglers. The boys, Orville and Jesse, helped put on the shingles; and when some one expressed surprise that Mr. Root was so lucky, Mr. McAuley remarked:

"Well, he ought to be lucky, for he has not only *worked hard* but he has *prayed* about it."

He meant by this, that, when asking the blessing at our morning meal, I alluded to our anxiety to save our property from dam-

age, recognizing there was hardly a possibility that anybody in this region needed *more* rain.

To be continued.

#### HATCH CHICKS THAT LIVE.

The efforts of the leading incubator experts of the country in the employ of the Cyphers Incubator Company in the past few years have been directed largely toward perfecting means that will insure larger, stronger, healthier, more vigorous chicks with the result that the new 1906-Pattern Standard Cyphers Incubator, which has made a phenomenal record—not only in the large percentage of eggs hatched, but in the uniformity of the hatches. The secret of its success is explained by the provisions made for giving the embryo in the egg a larger supply of oxygen, effected by giving the egg chamber more complete ventilation, and at the same time avoiding all excessive evaporation of the moisture in the eggs.

The testimony of leading Government Experiment Stations, prominent experts, leading fanciers and the larger commercial plants to the success of the new pattern, is truly remarkable.

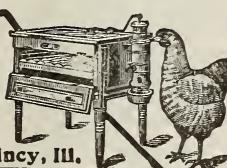
We are sure that our folks will want to investigate the claims made for this new pattern, especially as they are advanced by so reliable and conservative an institution as the Cyphers Incubator Co. Full particulars are given in the Company's new catalogue, a handsome book of 228 pages 8x11, containing seven special chapters on poultry culture and 500 fine illustrations.

Besides incubators and brooders it catalogues more than 70 good articles required by poultry keepers. It's a book worth having. It will be sent free if you say you are one of the Farm Journal folks and send along the address of two friends interested in poultry. Write the nearest office. Cyphers Incubator Co., Buffalo, Boston, Chicago, New York, Kansas City or San Francisco.

**\$12.80 For  
200 Egg  
INCUBATOR**

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

**GEO. H. STAHL, Quincy, Ill.**



#### Take Your Choice.

Guaranteed Self Regulating Incubators at \$1 and \$2 per month. Let rent pay for it. We pay freight. Buy on 40 Days Trial or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

**BUCKEYE INCUBATOR CO., Box 64, Springfield, O.**

## Hatch and Brood AT SAME TIME

Here's a new thing—a complete hatcher and brooder, one machine that performs both of these operations at the same time and does both well. The

### METAL MOTHER Brooder-Hatcher

is a long step ahead of all others—the most remarkable invention in the poultry world. With it 2 qts. of oil hatches 50 eggs and broods the chicks—brood one batch while you make another hatch. Our nest system enables you to do this. A time-saving, labor-saving, oil-saving machine \$7.50. Free catalog—tells how it works. Regular Cycle Hatchers and Brooders at \$5 each are great favorites. Write today.

**CYCLE HATCHER CO., BOX 223, SALEM, NEW YORK**

## Take Your Own Time. Old Trusty Incubator

40, 60 or 90 Days Trial.

We want to send you the "Old Trusty" Book. You ought to read it before buying an incubator, because it has more every-day "chicken sense" in it than any catalog you have ever seen. 300 good pictures. It tells why "Old Trusty" does such good work—why it hatches so many and so good chicks—why it is so easy to operate—why it is so economical. It's sold on 40, 60 or 90 days trial, freight prepaid. Write to us.

**M. M. Johnson Co.,**  
Clay Center, Neb.



We Pay the Freight.

## The Racine Incubator



Built by the man who devoted 24 years to its present perfect development.

We pay the freight

Can be operated by anyone, anywhere. Automatic regulator, copper tank, white pine case, double walled, nursery. Built to last 20 years.

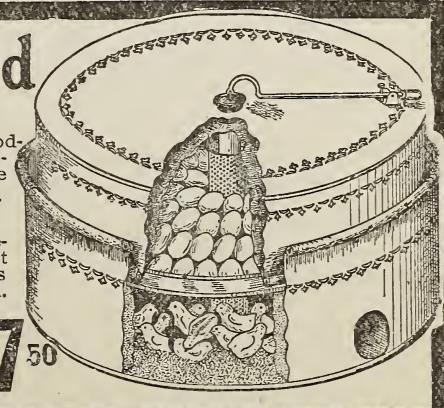
Don't buy until you read our remarkable *Incubator Book*, written by the man who made the Racine. When you learn what he knows, you will want his machine, we think. The book is free. Write for it. Address **Racine Hatcher Co., Box 114, Racine, Wis.**

Warehouses: Buffalo, Kansas City, St. Paul.

## BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by

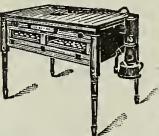
Poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. **BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.**



You can't tell a good incubator or a good brooder by looking at them. The only true test is in the **Hatching and Raising of Chicks**. The machines that **Prove** Best by that test are the

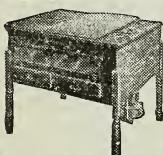
# IDEAL

Incubators and Brooders.



Made by the man who knows and backed by the J. W. Miller Cos.' guarantee to give you satisfactory results or your money back after 30, 60 or 90 days Free Trial. If you are discouraged try the Ideal—if you don't want to be discouraged try the Ideal. Send for the book "Poultry for Profit!"—Free. 128 pages, illustrates and describes everything needed to raise poultry.

Address **J. W. MILLER CO.,**  
Box 48 Freeport, Illinois.



### The Fresh Air Incubator

Fresh Air applied to Artificial Incubation in a new and effective way, making possible higher per cent hatches, brighter, healthier stronger chicks.

### 5 FREE BOOKLETS ON ARTIFICIAL POULTRY PRODUCTION

1st—The Standard Incubator. 2nd—An Incubator for Beginners. 3rd—Universal Hover and Colony Brooders. 4th—Feeding Chicks. 5th—What Users are Doing.

### A PIANO BOX WILL DO

Put the Universal Hover into it and make your own brooder. The Universal Hover may be attached to any size or form of Colony house, mushroom house, small portable building or piano box and make about as good a brooder as money can buy. Write for catalog and the five books FREE. Others to follow, you'll get them all if your name is on our mail list.

Prairie State Incubator Co., 414 Main St., Homer City, Pa.

### SEE THE 1906 RELIABLE

before you buy. Perfectly practical for poultrymen or beginners. Double heating system gives bigger hatches—saves one-third the oil. Sold on a money back guarantee. Write for free catalog. Reliable Farm Pure-Bred Birds and Eggs. Get prices. Reliable Incubator and Brooder Co., Box B-49 Quincy, Illinois, U. S. A.



### EGGS FROM BONE

Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls. **MANN'S LATEST MODEL BONE CUTTER**  
10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'l'g free. **F. W. MANN CO., Box 37, Milford, Mass.**

### TAKE NOTICE Army Auction Bargains

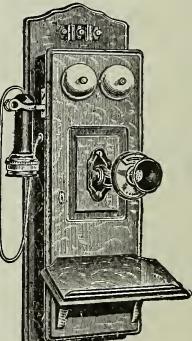
|                                                                     |           |                                  |        |
|---------------------------------------------------------------------|-----------|----------------------------------|--------|
| Revolvers . . . . .                                                 | \$0.50 up | Officers' Swords (new) . . . . . | \$1.50 |
| " Holsters . . . . .                                                | 10 "      | Side-arm Swords . . . . .        | .90    |
| Haversacks . . . . .                                                | .10       | Bayonets . . . . .               | .10    |
| Knapsacks . . . . .                                                 | .50       | Cabine Boot . . . . .            | .75    |
| Cartridges . . . . .                                                | .80       | Cross Rifles (dozen) . . . . .   | 1.00   |
| Muskets . . . . .                                                   | 1.65      | " Sabers . . . . .               | 1.00   |
| Saddles . . . . .                                                   | 1.90      | Screw Drivers . . . . .          | 1.00   |
| Saddle Bags (pr.) . . . . .                                         | .75       | Linen Collars . . . . .          | .30    |
| Bridles . . . . .                                                   | .65       | Brass Letters . . . . .          | .35    |
| Navy Hats . . . . .                                                 | .10       | Blue Flannel Shirts . . . . .    | 1.50   |
| Army Campaign Hats . . . . .                                        | .35       | Gunners' Hammers . . . . .       | .10    |
| Leggins (pair) . . . . .                                            | .15       | Army Spades . . . . .            | .65    |
| Army Uniforms consisting of New Helmet, Coat, Trousers all for 1.65 |           |                                  |        |
| 176-page Large Illustrated Catalog mailed (stamps) . . . . .        |           |                                  | .12    |
| <b>FRANCIS BANNERMAN, 501 Broadway, N. Y.</b>                       |           |                                  |        |
| Largest Stock in the world Government Auction Goods                 |           |                                  |        |
| 15 acres storage—2½ acres Broadway saleroom                         |           |                                  |        |

# Farm Telephones

### How they Help the Farmer

If the telephone really helps the farmer he is the man who ought to know the "how" and "why." We have recently published a book full of telephone facts for farmers, which every farmer in the country ought to read, whether he intends to buy a telephone or not. It will be sent FREE to all those interested who will take the trouble to write for it. This book tells how and why the telephone helps the farmer and his family, and why the modern farm equipment is not complete without a telephone. The telephone is a time-saver—consequently a profit-maker. Simply reading this book, "How the Telephone Helps the Farmer," will certainly convince any farmer that he is missing much he ought to enjoy if he is trying to do without a telephone in his home. It describes very interestingly the best telephone for the country home—

### Stromberg-Carlson Telephones



Tells just how each part from the case to the most important part is made; illustrates the various parts and shows by a very practical and complete description and explanation the duty and requirements of each; tells why we make them with such care, and exposes the secrets of the construction of cheap telephones; shows why they can be sold cheap, and why they should never be used on farm lines. It shows why Stromberg-Carlson telephones will outwear any other farm telephone made and how we produce an instrument that practically will never get out of order. Cheap telephones are invariably out of service just when you want them most; they quickly lose their talking qualities and are a constant source of annoyance and expense, simply because they are not made right. The principle of operation is just the same in a cheap telephone as in a good one—the difference all lies in the construction, the better materials used, and the greater care and skill employed in the making. We would like to have you read this book. Simply drop us a postal card asking for 36 G, "How the Telephone Helps the Farmer," and we will send it to you by return mail. Do it today before it slips your mind.

**STROMBERG-CARLSON TEL. MFG. CO.**  
**Rochester, N. Y.** **Chicago, Ill.**

# Let Me Quote You a Price on a First-Class Fanning Mill

How many dollars could you save if you owned a genuine Chatham Fanning Mill?

Think for a moment what it will do.

It will grade grain so you can get a fancy price for the best.

It will take weed seed, chaff and withered kernels out of seed grain.

It will separate one kind of grain from another.

It will remove oats from wheat.

It will clean Corn, Rye, Barley, Wheat, Oats, Timothy, Clover, Millet, Flax, Rice, Peas, Beans, Kaffir Corn, Potatoes, Broom Corn, Alfalfa, Grass Seed, Cotton Seed, Alsike, Blue Grass, Red Top, Buckwheat, Hungarian, Orchard Grass, Rape, Rye Grass and everything of this kind.

And in any one of these processes a Chatham Fanning Mill will save its entire cost in short order.

For the fanning makes every bushel of grain you raise worth more money.

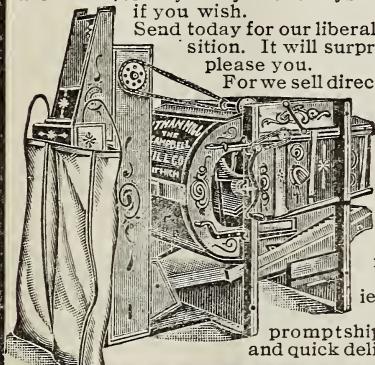
You don't sow weeds if you use a Chatham Fanning Mill.

You don't get "second price" for grain if it has been fanned.

And to prove our claims to you—to convince you that Chatham Fanning Mills are the best made and will do what we say—we are willing to let you try one 30 days **FREE**, if you wish.

Send today for our liberal proposition. It will surprise and please you.

For we sell direct to you and ship from one of our 20 big branch warehouses in leading cities. This means prompt shipments and quick deliveries.



And you get a Fanning Mill made by a factory that makes a specialty of high-grade mills.

You buy at a bargain price.

For we make our own mills in one of the biggest factories in the world.

Our ample capital enables us to buy supplies in immense quantities at low prices.

We turn out hundreds of Fanning Mills.

Our workmen are skilled. They have had long experience. They know just what to use and how to use it.

Consequently we are able to give you bigger value for your money than you can get anywhere else.

## The Chatham

Name Stands for Quality.

And you can get no such Fanning Mills as ours from ordinary mail order or catalog houses.

You cannot buy mills as good from dealers or at general stores.

Over 200,000 Chatham Mills are in use. We have made them for sixty years. Today they are better than ever—absolutely modern and up-to-date.

Users everywhere will tell you our mills are the best.

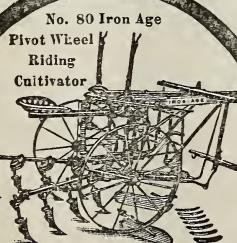
But send at once for the rest of the story and our liberal selling terms.

Ask for our little book "How to Make Dollars Out of Wind." It tells how a Chatham Fanning Mill will put dollars in your pocket.

A post-card with your name and address, mailed today, gets it.

**The Manson Campbell Co.  
(Limited)**

**Makers of Chatham Fanning Mills,  
Incubators and Brooders**  
342 Wesson Avenue, DETROIT, MICH.



No. 80 Iron Age

Pivot Wheel  
Riding  
Cultivator

are shown. They are weed killers, crop makers and labor savers. The No. 1 Wheel Hoe with its attachments enables one man to accomplish more and better work than three men by any other method. The No. 80 Riding Cultivator is wonderful for its adaptability to varying work and conditions. Send for the **New Iron Age Book** which describes the full line of Iron Age Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors, and a full line of Potato Machinery consisting of Planters, Sprayers, Cultivators, Diggers. **Free** on application.

BATEMAN MFG. CO., Box 120, Grenloch, N. J.

## KEEP AHEAD OF THE WEEDS

Poor crop weather seems to be the best kind of weather for weeds. The user of Iron Age Implements has the advantage in any kind of weather because he can get over his crop oftener, cultivate it better and kill the most weeds with the least amount of labor. Two of the famous

## IRON AGE IMPLEMENT

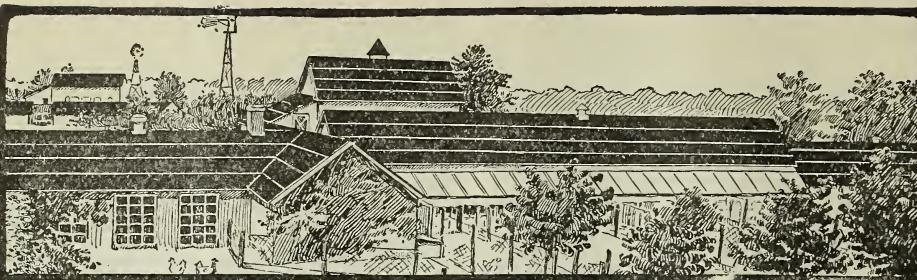


No. 1  
Iron Age  
Double  
and Single  
Wheel Hoe

## Western Seeds for Western Planters

Corn, English Blue Grass, Oklahoma Dwarf Broom Corn, Hungarian Brome Grass and full line Garden, Flower and Field Seeds. Write NOW for our 1906 Catalog. Free by mail. Address **Kansas Seed House, Lawrence, Kansas**, or **Colorado Seed House, Denver, Colo.**, or **Oklahoma Seed House, Oklahoma City, Okla.**

Seeds for Farm and Garden, Alfalfa, Macaroni Wheat, Russian Speltz, Millet, Kaffir



## HERE'S A PAROID ROOF, "The Roof That Lasts."

The Monmouth Poultry Farm, Freneau, N. J., one of the largest in the country, sends a photograph (see above) showing their Paroid roofs. They like it and so do thousands of poultrymen, the large ones and the small ones, because they found that for roofing and siding, nothing in the world equals

# PAROID ROOFING.

Economical, durable, extra strong, light slate color—contains no tar—does not run nor crack—does not taint rain water. Any one can lay it. Keeps buildings of all kinds warm and dry; spark, water, heat, cold, acid and gas proof, in short it's just the roof you're looking for. Now, don't be put off with a poor imitation, but

**Send for Free Samples** and name of nearest dealer. Investigate its merits for yourself. For a 2 cent stamp we'll send a book of complete plans for poultry and farm buildings.

**F. W. BIRD & SON, Makers.**

Originators of the free Roofing Kit—fixtures for applying in every roll.

**East Walpole, Mass.,**

*Established 1817.*

**Chicago, Illinois.**

# HOW You Get This New FREE

TONGUELESS Disc Harrow  
on Thirty Days' Trial

It's this way—

An entirely new feature is embodied in the construction of this Harrow.

The Forward Truck, without any Tongue, positively relieves the horses of all Neck Weight and Side Draft, and allows them free, easy movement. They have just an even, steady pull.

Why should a team, that is already having a hard time to work and travel on rough, uneven ground, be hampered and annoyed by the Threshing of a Tongue, and by the weight of a Harrow Frame?

There is absolutely no reason for it.

To give you a chance to examine this Harrow for yourself, and to prove to you that it is exactly as represented, and that it will produce the results claimed for it, we will send any size you select, on a 30 Days' Approval Test, *all Freight Charges Prepaid*.

If you find the Harrow to be exactly as represented, and to work as we claim it will, you pay for it: Cash or easy terms as you prefer. If not, send it back at our expense.

See What Mr. Weaver says:

Dexter Mo., Oct. 26, 1905.

American Harrow Co., Detroit, Mich.

Gentlemen: We are pleased to write you that the No. 1418 Tongueless Disc has been received and thoroughly tested, and found not wanting anywhere.

We have at last a long felt want supplied—a Tongueless Disc. We have concluded that the draft of this harrow is one-fourth less; three horses will draw this harrow with as much ease as four horses will any tongue disc made. We have often wondered why a tongueless disc was so long in getting made. We are surely pleased, and trust you will never make anything but Tongueless Discs.—Yours respectfully,

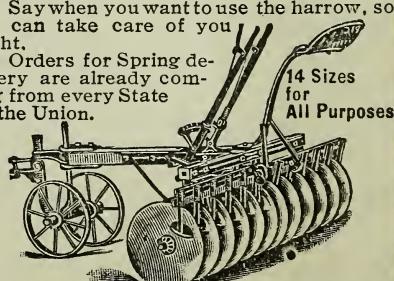
L. F. WEAVER.

This Harrow is built on right principles  
—No Side Draft.  
—No Neck Weight  
—No crowding of team in short turns  
—Just even, steady pull.  
—Front Truck carries weight of Frame, and controls movements of Harrow.  
—Ball bearings take the end thrust.  
—Double levers make handling easy.  
All our output goes direct to the farmers on the 30 Days' Approval Test Plan, with time to pay if you wish.

The Detroit Tongueless Disc Harrow is protected by exclusive patents and manufactured and sold only by us. Write today for booklet giving full description and prices that will please you.

Say when you want to use the harrow, so we can take care of you right.

Orders for Spring delivery are already coming from every State in the Union.



**AMERICAN HARROW COMPANY**  
4627 Hastings St., Detroit, Mich.



*Protected by Powdrpaint.*

**D**ON'T judge my discovery, POWDR-PAINT, by the price.

Because it costs you only about  $\frac{1}{4}$  the price of lead and oil paints, don't get the idea that it will not give as good service.

For POWDRPAINT not only lasts long and looks well but it goes farther, its *covering power* is one-third greater.

As I can prove by many well-known users.

\* \* \*

Here's why POWDRPAINT wears so well.—

—Why it resists heat, cold, frost, rain, acids, gases and *all* weather conditions, to such a remarkable degree:

It is based on the *cement* principle, as applied to paint.

You know Portland Cement when mixed with water, *sets* and becomes hard as stone,—hence it is called "hydraulic" cement.

Oil paints stick to various surfaces on account of their peculiar adhesive qualities.

Now, POWDRPAINT is *both* hydraulic and adhesive. It is made from the purest pigments, combined with adhesive substances much *Stronger* than oil.

Mix cold water with POWDRPAINT and it forms a hard, durable, enamel coating which will not dry out from the sun's heat and become soft and chalky.

No will it peel, check, blister or crack.

But, like Portland Cement, it "stays put,"—

—Holds its shape year in and year out.

\* \* \*

I was born and raised on a farm.

And I know how expensive it is for the

## Good Paint Without Oil at 1-4 the Cost

farmer to keep his buildings properly protected from the weather with *oil* paints.

POWDRPAINT is the best paint for barns, poultry, hog and sheep houses. It saves  $\frac{3}{4}$  in price, and you and your hired man can easily do the work at odd times.

For painting inside of poultry houses, etc., to destroy disease germs and for use on fruit tree trunks to destroy insects, it has no equal.

And it reduces your insurance, because POWDRPAINT is fire-proof, as well as weather-proof paint.

I also make DOUBLWEAR PAINT.

—A high-grade, ready-to-mix Oil paint, guaranteed for five years—at  $\frac{1}{3}$  less than the price of other paints not as good.

POWDRPAINT is best adapted for farm buildings, fences, factories, mill buildings, etc.

DOUBLWEAR PAINT is the cheapest and best oil paint made for the better grade of work, houses, fine interiors, etc.

I make paints in my own factory and sell direct to users at a price representing cost of material and labor, plus one small profit.

You save all dealers' profits—and *I pay the freight*.

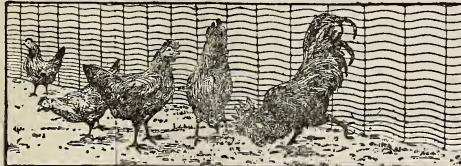
If you have *anything* to paint this spring it will pay you to send for my free paint samples. State whether you want POWDRPAINT or DOUBLWEAR, and I will also send you a very interesting booklet filled with practical paint advice, showing just how you can save from  $\frac{1}{2}$  to  $\frac{3}{4}$  on your paint bills.



*Discoverer of Powdrpaint.*

**A. L. RICE, Paint Maker,  
515 North St., Adams, N. Y.**

## Page Poultry Fence Costs Less



**Page Woven Wire Fence Co., Box 542, Adrian, Mich.**

erected than common nettings; fences poultry in and stock out; requires no boards and but few posts; never sags, bags, or buckles, and outlasts the posts. Complete description and prices furnished on request. Write today.

## COILED SPRING FENCE



Closely Woven. Can not Sag. Every wire and every twist is a brace to all other wires and twists full height of the fence. Horse-high, Bull-strong, Pig-tight. Every rod guaranteed.

**30 DAYS FREE TRIAL**

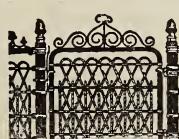
and sold direct to farmer, freight prepaid, at lowest factory price. Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad. Its brutal of fence facts. You should have this information. Write for it today. It's Free.

**KITSELMAN BROS.,  
Box 21 MUNCIE, INDIANA**

## BROWN PAYS THE FREIGHT

**HEAVIEST FENCE MADE**

All No. 9 Steel Wire. Well Galvanized. Weighs  $\frac{1}{2}$  more than most fences. 16 to 35¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.



## LAWN FENCE

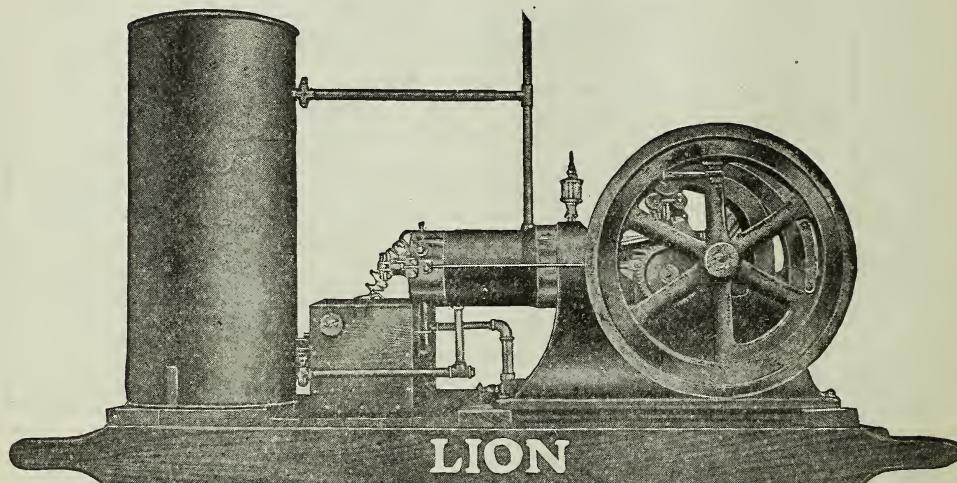
Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE 60, Box 448, Winchester, Ind.

# YES! WE ARE SELLING GAS AND GASOLINE ENGINES.

## DIRECT FROM FACTORY TO USER.

The secret of our success in this field, hitherto unoccupied, is the extraordinary pains we take in teaching the purchasers of "Lion" engines how to operate them intelligently.

**THIS ENGINE IS NO EXPERIMENT.**



The "Lion" Gas and Gasoline Engines are simplicity simplified; they are used for all purposes where power is required, and will be found the most economical in operation.

**WRITE US A LETTER LIKE THIS TODAY.**

LYONS ENGINE COMPANY, Lyons, Mich.

Gentlemen: I am about to purchase a gas or gasoline engine for ..... purposes, a. d. wish you to send me full particu'ars about your approval offer as ad- vertised in "Gleanings in Bee Culture." Yours very truly,

Name..... Town.....

State..... Street No. or P. O. Box.....

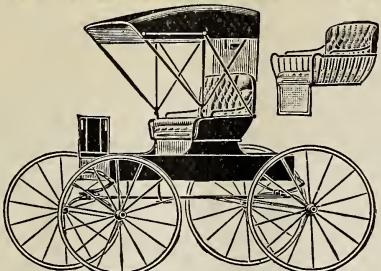
R. F. D. ....

When writing, please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Send for descriptive catalog and further information in regard to our special "installment plan" of purchase. If you are thinking of buying a gas or gasoline engine, it will be worth your while to see how cheaply we can sell you a high-grade engine.

**LYON ENGINE COMPANY, Lyons, Michigan**

PLEASE REMEMBER WE SEND THE ENGINE, NOT THE ENGINE AGENT.

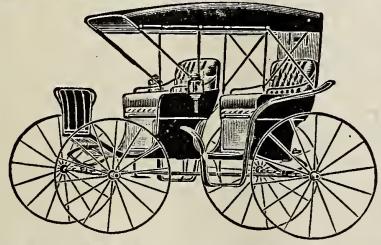


**No. 629½.** Combination Top Buggy with Bike Gear and  $\frac{1}{8}$  in. rubber tires. Price complete with extra stick seat, \$69.50. As good as sells for \$25 more

### 33 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price. **We are the largest manufacturers in the world** selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large free catalog.

ELKHART CARRIAGE & HARNESS MFG. CO., Elkhart, Ind.



**No. 320.** Extension Top Surrey. Price complete, \$70.50. As good as sells for \$25.00 more.

**SPRAY PUMPS**

The Pump That Pumps

SPRAY PUMPS Double-acting, Lift, Tank and Spray PUMPS

Store Ladders, Etc.

**YERS**

HAY TOOLS

Glass Valve

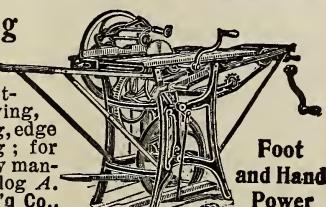
of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name “Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.  
Ashland, Ohio.

### Wood-working Machinery.

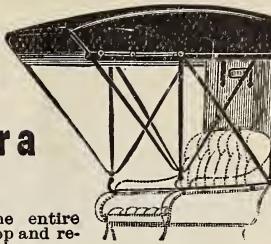
For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog A. The Seneca Falls Mfg. Co., 44 Water St., Seneca Falls, N. Y.



Foot and Hand Power

### TRADE Your Old Buggy for a New One

We are selling the entire output of a buggy top and repair factory at less than regular factory prices. You can make your old buggy look new for only a few dollars.



### Eight Factories With One Selling Head. Entire Output direct to you.

The entire output of eight factories making Buggy Tops and Supplies, Vehicles of all kinds, Paints and Varnishes, Steel Ranges, Sewing Machines, Farm and Blacksmith Tools, Steel Wheels and Handy Wagons, Telephones and Supplies.

All combined to cut down selling expense and deliver goods to the consumer direct at unheeded of low prices.

**Write for Big Free Catalog.** describing and illustrating the output of all of our factories in one big volume. The greatest selling plan ever devised, to save money for the buyer, plainly and clearly explained. The Book is free. Write for it.

**THE UNITED FACTORIES CO.,**  
Dept. 38 Cleveland, O.

Get a Genuine  
**SPLIT HICKORY**  
It costs no more than the unknown kind. Rock bottom factory prices and double value.

Here's a Beauty—  
Made to order. 30 days free trial. 2 year steel-clad guarantee. Write us what style vehicle you want. 1906 Catalog—100 styles

Free. Write for it today.

The Ohio Carriage Mfg. Co.  
H. C. Phelps, Pres.  
Station 293  
Cincinnati, Ohio.



### Whitewashing

and disinfecting with the new “Kant-Klog” Sprayer gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, &c. Booklet free. Address



**ROCHESTER SPRAY PUMP CO.,**  
Rochester N.Y. 32 East Ave.

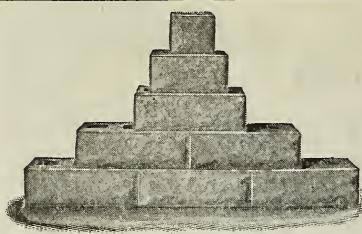
### Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. **Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits.** Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Henon & Hubbell, Western Arts, Chicago.



**65c for 25 NAMES**—For names and P.O. of 25 farmers and 15c (stamps taken) we will send for 2 years, the Farmer's Call—regular subscription price, 40c a year. F.C. is a weekly, 25 years old; 1300 pages a year; sample free.

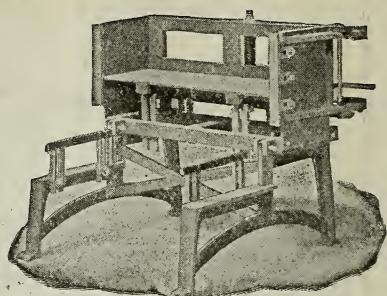
Farmer's Call, Quincy, Ill.



makes from 25 to 35 blocks. Write for descriptive circular and list.

## These Blocks

were made on one of our \$50 concrete building-block machines. Prices range from \$50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement



Medina Concrete Company  
Medina, Ohio



 This TRADE-MARK Insures  
**THE BURPEE QUALITY**  
of the

**Best "Seeds that Grow"**

## Burpee's Seeds

yet are *worth* much more. At our own farms in Pennsylvania and New Jersey, as well as in the gardens of planters everywhere, Burpee's Seeds are proved by test to be the **BEST SEEDS THAT GROW**. Consequently we hold the largest mail-order seed trade in the world. Our "Silent Salesman," *plain truth*, with photographic pictures of the superior products of BURPEE'S "SEEDS THAT GROW," will be mailed **FREE**—if You will write for

1876

*Burpee's*

1906

## Farm Annual for 1906

Thirtieth Anniversary Edition of "The Leading American Seed Catalogue."

This is a handsome book of 168 pages, carefully edited and neatly printed; bound in cover lithographed in nine colors, it shows, *painted from nature*, Seven Superb Specialties in Vegetables of unequalled merit and Six Novelties in Flowers—including LUTHER BURBANK'S *New Floral Wonder*.

**This Invitation** to write for our New Complete Catalogue and then participate in the Special Celebration of our Thirtieth Anniversary is given to all planters who delight in raising the Choicest Vegetables or most Beautiful Flowers.

If you intend to garden this spring you will want to lay your plans, and therefore we urge you to **WRITE TO-DAY!**—the very day you read this advertisement. Mention this paper and address

**W. ATLEE BURPEE & CO., Seed Growers, Philadelphia, Pa.**

## CORN, FIELD, AND GARDEN SEEDS!

We are headquarters for medal-winning, premium-taking, pedigreed, fire-dried sweet corn; all the leading varieties. Send at once for our new catalog of farm, field, and garden seeds. It tells you how to double your crop, as many farmers are doing. Sent free on application. Address

**J. B. Armstrong & Son, Shenandoah, Iowa.**

# Early Crops Mean Big Prices

The sooner your early vegetables are on the market, the higher the prices they command. You know this and you know also that our

**Hardy Northern Grown Seeds** grow fastest, mature earliest, and make largest crops. You know why. The Northern growing season is shorter, plants grow quicker and mature sooner. This makes them strong and sturdy. Their vitality is greater. Their seeds sprout very quickly, grow very rapidly and mature in the shortest possible time. This means early crops. Early crops mean first markets, and first markets mean fancy prices. Try it yourself and see.

**TAKE POTATOES!** We grow all the popular varieties, but **Our Extra Early Petoskey** is the fastest grower—the quickest to mature—the biggest producer. You can get them on the market from two to three weeks ahead of all other varieties. And the potatoes are big, tempting beauties—snow white, mealy and delicious eating.

FOR 25 CENTS (stamps or coin) we will send you a big Petoskey Potato and our complete catalog of **Hardy Northern Grown Seeds**. Catalog alone FREE. Write today and get your seed in the ground early. You won't be sorry. Remember you can prove all we say if you act promptly and send at once.

**DARLING & BEAHAN, 72 Michigan Street, PETOSKEY, MICH.**

**THE WORLD'S LARGEST TOMATO**  
WEIGHT, 6 LBS. AND 2 OZ.  
**FREE SEEDS**  
Send us your name and address today for a Free Pkt. of this Mammoth Tomato Seed, together with our Big 1906 Catalog of "Pure and Sure" Seeds. It describes everything needed for the Field, Garden and Lawn at Wholesale Prices direct to the consumer, as well as our New 372 Bus. Per Acre Corn, "Nichols' Golden Chief," for which we offer to pay \$5.00 per ear to Growers this season. It is the handsomest Garden Guide ever issued—mailed free. Write Today

**ST. LOUIS SEED CO.**  
704-706 N. 4th Street St. Louis, Mo.

**"DOOR-STEP FLOWERS"**  
There are two great classes of out-door flowering plants: the ANNUALS which are grown from seed each season, and the HARDY HERBACEOUS plants which live from year to year. We are large growers and collectors of both classes—38 years experience—and we offer all the best HARDY varieties. Send for our 1906 SEED CATALOG, which includes also TESTED VEGETABLE SEED. Remember we are the largest growers of STRICTLY HARDY fruit and ornamental trees and plants in the United States. Established 1868. 1200 Acres. \$5 FREE CATALOGS. Reliable Agents Wanted.  
The Jewell Nurseries, Box 12 Lake City, Minn.

**GREAT CROPS OF STRAWBERRIES AND HOW TO GROW THEM**  
1906 BOOK FREE  
Worth its weight in GOLD.

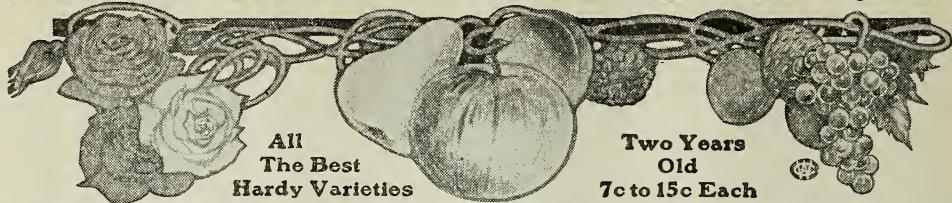
The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get Big Results, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

B. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH.

**GOOD SEEDS CHEAP**  
BEST EVER GROWN  
A wonderful big catalog Full of engravings of every variety, with prices lower than other dealers. The book is worth a dollar to any one who plants seeds.  
Big Lot of Extra Packages Free to Every Customer.  
Send yours and neighbors address.  
**R. H. Shumway, Rockford, Illinois.**

**HARDY EVERGREENS**  
We grow them by the million. To prove they are healthy and vigorous we offer 12 Spruce and Pine 2 years old FREE to property owners. Mailing expense 6c, which send or not. A postal will bring them. Catalog with 43 colored plates of Hardy Fruits etc., free. Write today.  
The Gardner Nursery Company, Box 748, Osage, Ia.

# APPLE TREES 7c



## POPLAR TREES AND ROSE BUSHES, TEN CENTS EACH

ASPARAGUS, the most popular vegetable, yields at the rate of \$400 per acre, two year plants 75 cents per 100; \$4.50 per 1,000. Grape vines and fruit plants at low prices. **POPLAR TREES** for driveways, shade and lawns. The most rapid growing trees, 10c to 17 cents each. **ROSES**. A large collection of hardy varieties, also our Live-for-Ever Pink Rose. 10c to 20c each.

## BUY DIRECT FROM GROWER — SAVE 35 PER CENT

Let us price your list of wants. Green's 1906 Catalogue, also copy of Green's Big Fruit Magazine free. Send postal card for them today. **GREEN'S NURSERY COMPANY, 41 WALL ST., ROCHESTER, N. Y.**

**EVERGREENS AND FOREST TREES**

That are Sure to Satisfy

I have been growing evergreens and forest trees for 31 years, always with one idea—trees that satisfy. When you buy Hill's trees you get honest value—highest quality. My catalogue is my salesman; it's free. Contains 48 pages illustrated with beautiful pictures; describes all kinds of nursery stock for all purposes—hedges, wind-breaks and ornament. Also fruit trees, shrubs and vines. 50 Best Bargains ever offered—\$1.00 to \$10.00 per 100 Prepaid. Everything first-class, guaranteed exactly as represented. Write for catalog today.

**D. HILL, Evergreen Specialist**  
Dundee, Ill.

## Strawberry Plants

Virginia and Chesapeake, winners of \$100 GOLD PRIZE others; also Cardinal, Commonwealth, North Shore, Oaks Early, New York, Glen Mary, Stevens Champion, and 90 others; best list, good stock, fair prices. Dewberries: Lucretia and Austins.

**Seeds** Full line best new and standard old varieties GARDEN, FIELD and FLOWER SEEDS. New 60 Page Catalogue Free. It tells about good plants and seeds and where to get them. Send now to **W. F. ALLEN, Dept. 20, SALISBURY, MD.**

**CARFF'S STRAWBERRIES**

I grow millions of strawberry plants that yield luscious fruits. All true to name—full of life. They're money-coins that will yield **\$300 PROFIT PER ACRE**

My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write today.

**W. N. Scarff, New Carlisle, O.**

A beautiful colored plate of our

## New Eaton Red Raspberry

and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

**THE FLANSBURGH & POTTER CO.,**  
Leslie, Michigan.



## Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, Fruit and Ornamental Trees

The best by 52 years test, 1200 acres, 40 in hardy roses, none better grown, 44 greenhouses of Palms, Ferns, Ficus, Geraniums. Everblooming Roses and other things too numerous to mention. Seeds, Plants, Roses, Etc., by mail postpaid, safe arrival and satisfaction guaranteed, larger by express or freight. You will be interested in our extraordinary cheap offers of over half a hundred choice collections in Seeds, Plants, Roses, Trees, Etc. Elegant 168-page Catalogue FREE. Send for it today and see what values we give for a little money.

**THE STORRS & HARRISON CO.,**  
Box 188, Painesville, Ohio.

**50 BULBS**  
25 Cents.

Will grow in the house or out of doors. Hyacinths, Tulips, Gladiolus, Crocus, Fuchsias, Oxalis, Tuberoses, Begonia, Jonquils, Daffodils, Chinese Lily, Dewey Lily, Gloxinia, Lilies of the Valley—all postpaid, 25c. in stamps or coin. As a premium with these Bulbs we will send FREE a big collection of flower seeds—over 200 kinds.

**HILLSIDE NURSERY, SOMERVILLE, MASS.**

## Trees, Plants & Seeds

### THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seedlings \$1 a 1000 up.

**GERMAN NURSERIES**  
Carl Sonderberger, Prop.

seed s  
very cheap.  
Freight paid  
on trees. Cata-  
logue, English or  
German, free. Write  
for it today. Address  
**GERMAN NURSERIES,**  
Box 33, Beatrice, Neb.

## THE BEST RASPBERRY

is Plum Farmer; early, large, enormously productive. Catalog of raspberry, strawberry and other berry plants free. Write for it NOW.

**L. J. Farmer, Box 603** Pulaski, N. Y.

# Mr. Green says

It is time to plan your garden.

Just take a pencil, make a diagram, plot it out with what you desire, and then select the varieties. You will find with a little fore-thought you can have a much better garden than last year.

Of course you will want our catalog to aid you. It tells you how to make good gardens. A postal will bring a copy.

**E. C. Green & Son**  
Seedsman,  
Medina, Ohio, U. S. A.

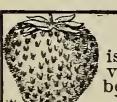
## The Best Fruit Paper

is The Fruit-Grower, published monthly at St. Joseph, Mo. The regular subscription price is a dollar a year but if you will write for free sample copy and mention this paper, you will receive a proposition whereby you may secure it one year WITHOUT COST. Every one who has a few fruit trees or a garden, should read

## THE FRUIT-GROWER

ST. JOSEPH, MISSOURI

Every issue is handsomely illustrated and from 32 to 64 pages a month are filled with interesting matter pertaining to fruit-growing and gardening. The first four issues of 1906 will be handsome special numbers devoted to the following subjects:—January, The Horticultural Societies; February, Spraying; March, Gardening; April, Small Fruits. Any one of these numbers will be worth a dollar to you. We publish the "Brother Jonathan Series" of fruit books. Send your name and BRO. JONATHAN learn how to secure these books free. Fruit-Grower Co. 152 S. 7th, St. Joseph, Mo.



### THE BEST STRAWBERRY

is Senator Dunlap—large, fine colored, very productive. Catalog of Strawberry and other berry plants FREE. L. J. Farmer, Box 608, Pulaski, N. Y.

## 450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. Lewis Rosch, Fredonia, N. Y.

## 300,000

**PLUM TREES.** 2 years on plum roots, 6 to 7 feet, 15c each; 5 to 6 feet, 12c; 4 to 5 feet, 7c; 3½ to 4 feet, 5 cents. 250 Trees for \$10. Boxing free. Liberal discounts on early orders. Millions of Fruit, Shade, and Ornamental Trees. Small Fruits of every description. Secure varieties now, pay in spring. 80-page Catalog Free to everybody. SHEERIN'S WHOLESALE NURSERIES, Dansville, N. Y.

## INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my book describing

**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production.

I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly.

Send for my complete literature.

**CHAS. A. CYPHERS**  
3927 Henry St. Buffalo, N. Y.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



**40 BREEDS** Fine pure-bred, chickens ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4c for fine 70-page poultry book and catalog. R. F. NEUBERT, Box 778, MANKATO, MINN.

## Long Island CABBAGE SEED

American cauliflower seed and other choice vegetable seeds for gardeners.

Francis Brill - Grower - Hempstead, N. Y.

**FREE** Flower Seeds. 1000 sorts, new and old, for a big bed, also PARK'S NEW FLORAL GUIDE FREE. Tell your friends. GEO. W. PARK, La Park, Pa.

## FRUITFUL TREES MILLIONS OF FRUIT AND FOREST TREES

Small Fruits and Evergreens. Russian Mulberry and Black Locust, \$1.00 per 1000. Carefully dug and packed. Freight prepaid on \$10.00 orders. Catalogue free. Fine trees guaranteed.

Gage County Nurseries, Box 647, Beatrice, Neb.

# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry. . . .

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

**The Howard Publishing Co.**  
714 12th St. N. W., Washington, D. C.

## PROFITABLE POULTRY

Send 3c for our 64-page book, finely illustrated, that tells how to make money raising poultry. Others are doing it; why not you? This book gives full information on breeding, feeding, rearing and hatching. Illustrates and tells why Berry's "Biddy" incubators and brooders hatch and raise the largest per cent of chicks—the kind to buy. Contains cuts of our fine pure-bred poultry with prices of birds and eggs for hatching. Berry's Golden Rule Poultry Farm, Box 53 Clarinda, Ia.

## You Need It. . . .

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a **YEAR** at **HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

**EGGS FOR HATCHING**  
Buff Plymouth Rocks, White Wyandottes, Black Minorcas, White Leghorns, Reds, \$1; Houdons, Lt. Brahmams, \$1.25. We guarantee as good as you say double for, or your money back. Send for catalog.

W. W. SHAMPAHORE,  
Box D. Little Silver, N. J.



## Greider's Fine Catalog

of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of lifelike fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best

equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

**B. H. GREIDER, RHEEMS, PA.**



## FREE! FREE!

Send for a copy of the INLAND POULTRY JOURNAL, and receive a fine color picture free. Cost us \$400 costs you nothing. Our paper has the admiration of every poultry man. Have you seen it? Well do not miss it. Address  
Inland Poultry Journal Co.,  
50 Cord Bldg., Indianapolis, Ind.

## POULTRY PAYS

if you get the right start, the right eggs or fowls and the right materials to work with. Our complete poultry guide pictures and describes all breeds, gives incubating, brooding and feeding directions. It lists Thoroughbred Fowls and Eggs, incubators, brooders, poultry rations and everything needed for profit. All at lowest prices and all guaranteed satisfactory or your money back. Send for Free Book for 10 cents postage. American Incubator Co., Box 115, Freeport, Ill.



## BOOK ON POULTRY DISEASES FREE

Conkey's book on Poultry Diseases sells for 25cts. Full of information on housing, feeding, sickness, and how to care for the flock. Will help you to make money. Send 4 cents to pay postage and the names of two other poultry raisers, and we will send you a copy of this illustrated book of valuable information free.

**G. E. Conkey & Co., No. 80, Ottawa Bldg., Cleveland, O.**

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

**The Poultry Gazette, Dept. B, Clay Center, Neb.**

## 100 SPECIAL PRIZES

Besides our regular premiums of Post Cards, Books, Eggs for Hatching, Cash Commissions, etc., for getting subscribers. Write at once for sample copy, blanks, etc. Also souvenir bee post cards. . . .

**Poultry Item : : Fricks, Pa.**

## Regarding Our Advertisers.

J. B. Armstrong & Son, Shenandoah, Iowa, whose ad. appears on page 170, have issued their 24th annual seed-corn catalog. They will send this instructive book and generous samples of corn and field seeds free.

Kitselman Bros., Muncie, Ind., make a stock-proof fence which really has merit. Their fences are growing into very wide use. They make a liberal trial offer in their ad. on page 167, and have a 40 page catalog for free distribution.

Mr. J. Wallace Page is to be congratulated on the large and successful business he has built up during the last twenty-two years. The secret of his success is a well-known one—goods of the highest quality, and square business methods. The Page Woven Wire Fence Co.'s adv't appears on page 167. Write for their free printed matter.

Berry's Golden Rule Poultry Farm is a name new to poultry-men. The firm, however, is not new in the poultry business, and they handle many of the latest varieties. The new Biddy incubator which they manufacture is worth knowing about. See the Berry adv't on page 174.

Mr. A. L. Rice, Adams, N. Y., in his adv't on page 167, tells of his new cold-water paint for barns and buildings, and his oil paints for interiors. Mr. Adams advocates the plan of painting frequently, and using good paint. Surely experience has proved that this is the profitable way. Free samples and color-cards will be sent if requested.

Mr. Chas. A. Cyphers, Buffalo, N. Y., presents the subject of poultry culture in a new, helpful, and attractive way in his book, "Eggs, Broilers, and Roasters." This book is the best on this subject we have ever seen. It is well worth sending for. Mr. Cyphers promises to send it free to all who ask for it.

The name "Iron Age" has come to be known wherever farm implements are used. The Bateman Mfg. Co., Box 120, Grenloch, N. J. (ad. on page 165), issue a very fine catalog this year. It shows about every implement a farmer could use, from cultivators and seeders to sprayers and diggers. The book is for free distribution.

A 180-page catalog is a rather large book for free distribution, especially when so attractively printed and profusely illustrated as the catalog of the Ohio Carriage Mfg. Co., Cincinnati, Ohio. Every thing in Split Hickory carriages and vehicles will be found in this book. See the offer made in this company's ad. on page 169.

A great stride was taken in the advertising of railroads when the Southern Pacific appropriated \$100,000 for advertising their road in the leading magazines. Their advertisements tell of the great scenic beauty of their route, and make known their offer to send an illustrated book, "The Road of a Thousand Wonders," free. For the benefit of our readers who wish to send for this book we give the address of the distributor: Chas. S. Fee, Passenger Traffic Manager, S. P. R. R., 431 California St., San Francisco, Cal. This entire series of advertising was prepared and is being placed by the N. W. Ayer Advertising Agency, Philadelphia.

We wish to announce the change in the firm name of our jobbing agent in Central Pennsylvania. Prothero & Arnold, Dubois, Pa., have sold out to Frank W. Prothero, of the same city. Mr. Prothero will continue to be the sole manager of the business as heretofore, but the business has been greatly enlarged. We have already shipped them a large car of all kinds of supplies and expect to ship them several more in the near future. Mr. Prothero has in his large establishment every facility for the quick and careful handling of orders, and our customers in West-Central Pennsylvania will save time and money by sending their orders there.

E. C. GREEN & SON, SUCCESSORS TO A. I. ROOT IN HIS  
SEED BUSINESS.

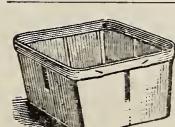
For its size there is surely not a better seed catalog issued than Mr. Green's. It is packed full of valuable garden information—not an inch wasted on any thing that does not appeal to the average garden-maker. It is illustrated with beautiful, truthful halftones. Complete prices, which will pay you to see. You had better write Mr. Green to-day, asking for a copy. Below is a reduced halftone of their cover for 1906.



**\$41.00 Is All**  
you have to pay for a 2-year direct  
steel-clad guaranteed, genuine  
**SPLIT HICKORY WINNER**  
Top Buggy, sold on 30 days' Free Trial. It  
costs no more to get something good. We  
make in our own factory everything we sell.  
Write and tell us the kind of vehicle you  
want. 1906 Catalogue,  
180 pages, Free.

THE OHIO CARRIAGE  
MFG. CO.  
H. C. Phelps, Pres.  
Station 293,  
Cincinnati,  
Ohio.

**\$41**



**Free! Free!**

Our catalog of berry-plants, 32-quart berry crates and baskets. Special prices for Febr'y orders

**H. H. Aultfather  
Box 3 Minerva, O.**

**Fruit Trees.**—\$6.00 per 100 and up. Fine assortment of trees, shrubbery, vines, plants, etc. Our ideal soil and climate, produce best trees. Well packed; guaranteed against damage in transit. Catalog free.

CHATTANOOGA NURSERIES, Chattanooga, Tenn.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.



**BEE-KEEPERS' SUPPLIES.**

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

**Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,**

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.

**Over Two Tons** of New Weed-Process Foundation on hand. I secured this while the weather was warm, on the advice of The Root Company. I am glad I took their advice, for there is not a cracked sheet in the lot. It is two to three cents lower than it was last year, but it might advance again in May. Wouldn't you like to secure yours right now?

**480,000 Sections** here ready for immediate shipment. I had not thought that they could be made better, but I really believe they are just a little nicer than they have ever been.

**Hives Galore!** Any kind—eight-frame, ten-frame, or Danzenbaker. My catalog describes every thing required in the bee-yard. My new stock of smokers have the latest improvements. It would be a pleasure to mail you my new catalog, and it is free for the asking.

**If you send** in your order before March first you may deduct 4 per cent for early-order discount. In March the discount will be 2 per cent.

**BEESWAX WANTED.**

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always sure to attach your name to package.

**WALTER S. POUDER,**  
513-515 Massachusetts Ave., = INDIANAPOLIS, IND.

# PAGE & LYON

## NEW LONDON, WISCONSIN

\* Manufacturers of and Dealers in \*

## BEE-KEEPERS' SUPPLIES

4 per cent Discount during February on all Orders Accompanied by Cash

Send for Our FREE  
New Illustrated Catalog and Price List

## Dittmer makes a Specialty of Working Beeswax into Comb Foundation

Write for our price list, samples, and early-order Discount  
We would like to send them to you at our expense.  
Our warehouse is full of bee-supplies.  
Jobbing - Wholesale - Retail.  
Beeswax always wanted.

CUS DITTMER,

--

AUGUSTA, WIS.



**YORK HONEY AND BEE SUPPLY CO.**  
141 ONTARIO STREET : CHICAGO, ILLINOIS

Not  
Inc.

CARRY A FULL LINE OF  
**Lewis Bee-supplies and  
Cornell Incubators and Brooders**

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 27 cts. cash, or 29 cts. when taking bee-supplies in exchange. Early-order discount, four per cent for February.

H. M. ARND, MANAGER

# HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring.

We should like to quote you prices in any quantity on the following:

### The Root Chaff Hive

The best chaff hive made

### The Danzenbaker Hive

The comb-honey hive

### The Root Dovetailed Hive

Standard size and extra quality

~~~~~  
Send for Catalog

## M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan



## Michigan Distributors

—FOR—

### G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly damaged by water, in packages of five at \$1.25 per hive for 1½ story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

### A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

### BIG DISCOUNT till April 1 ON ALL SUPPLIES

Dovetailed hives, eight-frame, 1½-story, \$1.30; 10-frame, \$1.45. No. 1 sections, \$3.75; No. 2, \$3.25. Foundation, smokers, etc., reduced. Berry boxes, crates, boxes, etc., kept in stock. Honey wanted. Twenty-four page list free.

**W. D. Soper, Rt. 3, Jackson, Mich.**

# SEEDS

### 1905 CROP

We sell the best grade of Garden, Field, and Flower Seeds, also Bulbs, that money will buy. We are re-cleaners of Clover, Timothy, Red Top, Blue Grass, Mammoth White Rye, Beardless Barley, Seed Wheat, and a full line farm seeds. Catalog and Field Seed price list free. THE HENRY PHILIPPS SEED & IMPLEMENT COMPANY 115-117 St. Clair St., Toledo, Ohio

# CO-OPERATION

Means—you work for me and I work for you for Mutual Benefit

A well-known manufacturer wishes to cash \$2000 worth of goods during

## JANUARY.

He has made me the lowest prices I have been able to secure in years, viz.:

The 8-frame Dovetailed hive, 1½-story, at \$1 each, any frame, any cover, etc.; 10-frame, \$1.10.

No. 1 white basswood standard-size sections, at \$3.25 per 1000; No. 2, \$2.75 per 1000.

I will take you, Mr. Bee-keeper, into partnership. There are three conditions, viz.. 1st—Cash to reach me not later than Jan. 30, 1906. 2d—You subscribe for Rural Bee-keeper one year, \$1.00. 3d—You pay me a commission for my services, viz., 10 per cent on all orders for \$50 or less; 8 per cent on \$50 to \$1.00; 7 per cent on \$100 to \$200; 6 per cent on \$200 to \$300; 5 per cent on \$300 to \$500; 3 per cent on \$500 to \$1000; 2½ per cent on all orders over \$1000.

No catalog. Prompt shipment. Money refunded in case all are sold. No risk.

**W. H. Putnam, River Falls, Wis.**

FOR 14 YEARS

**I. J. STRINGHAM**  
OF 105 PARK PLACE  
**NEW YORK**

has been furnishing bees and aparian supplies of every desired kind to bee-keepers of the East. A very liberal discount is now allowed early orders.

Apianies, Glen Cove, L. I. - - Catalog free.

### NOTICE!

The firm of Cooley & Dueel has dissolved partnership. D. Cooley will continue to sell bee-supplies. All orders will receive prompt attention. Address all orders to

**D. Cooley, - - Kendall, Mich.**

**A. H. REEVES**  
DISTRIBUTOR OF ROOT'S GOODS FOR  
**NORTHERN NEW YORK**  
Perch River, Jefferson Co., N. Y.

## Bee-keepers, Co-operate!

We are Bee-keepers--Organized in the Interest of Fellow Bee-keepers  
(No Matter where They Live)

Membership dues, \$1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-keepers write us now and send the names and addresses of all your neighbor bee keepers.

**The St. Croix Valley Honey-producers' Association**

Headquarters Until June 1, 1906  
Glenwood, Wisconsin

## Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

## BEE - SUPPLIES

Distributing-house for Lewis' Goods, Dadant's Comb Foundation, etc., at Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before February, 6 per cent discount.

**FINE EXTRACTED HONEY** ☒ ☒ ☒

The best the world can produce. Sample sent, 8 cents. How much can you use? We always buy beeswax. Catalog and "Special" free.

**C. M. SCOTT & CO.**  
1004 E. Washington St.  
Indianapolis : Indiana

## Southern Bee-keepers!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the **WHITE MANUFACTURING COMPANY**. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co.**

**Blossom, Lamar Co., Texas**

# Bee-supplies



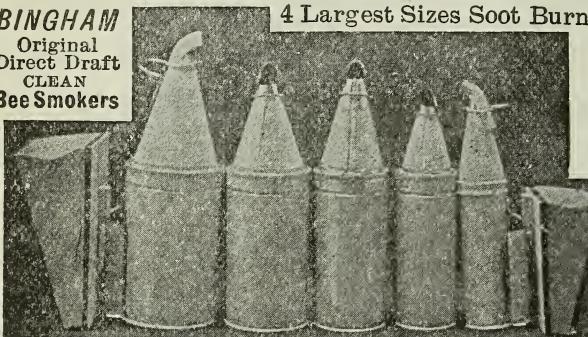
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

**Kretchmer Mfg. Co., Council Bluffs, Iowa**

**BINGHAM**  
Original  
Direct Draft  
CLEAN  
Bee Smokers

Pat. Ad. 1873, '74, '75, '76, '77 & 1888



4 Largest Sizes Soot Burning

Never Go Out  
And last from 5 to 21 years

**BINGHAM was the FIRST.**

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it.

L. L. LANGSTROTH.

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder  
Prices—\$1.50; \$1.10; \$1.00; 90c; 65c by mail on receipt of price.

**T. F. BINGHAM, FARWELL, MICH.**

**ONLY BINGHAM SMOKERS**  
Have These Latest Improvements.

## WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very  
best of Dovetailed Hives, Ship-  
ping-cases, and a full line  
of bee-keepers' supplies  
always on hand. We make  
very prompt shipments.  
Let us hear from you.

**MARSHFIELD M'F'G CO.**  
**MARSHFIELD, WISCONSIN.**

## A Prosperous

**Season is yours.....**

if you take time by the forelock, and be prepared for the season when it comes. DON'T put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

# Get Caucasian and Italian

---

# BEES - AND - QUEENS

---

## from California

---

WE HAVE received a number of letters from bee-keepers all over the U. S. asking us how to get and where to get good queens of pure Caucasian stock. The wonderful gentleness of Caucasian bees has attracted the attention of all practical bee-keepers, and therefore it is no wonder that they're going to introduce them into their apiaries and make a trial of them. We know that, to come to the right conclusion regarding the value of the testing race, the principal condition is to have the testing-subject from right source. So if one wishes to test Caucasian bees he must be assured he is testing pure Caucasians.

In order to furnish pure stock of Caucasian bees, last summer we imported numbers of Caucasian breeding queens direct from Caucasus from the best breeders that there are in that country. From the best of these imported queens we are now raising young ones for the market on a large scale, and we make very reasonable prices, wishing to give the opportunity to every one to have them.

California with its high mountains and deep canyons gives us the opportunity of having isolated places for the special yards for Caucasian bees.

We sell only tested queens, and we guarantee the purity of the race.

Also we have procured several Italian breeding queens from the principal American breeders, and we have large quantities of three and five banded Italian queens of the best honey-gatherers.

Our method of raising is up to date. The man who manages this business has spent thousands of dollars and years of time in studying the matter up. He is well acquainted with the best apicultural establishments in both Europe and America, and was for two years with the famous A. I. Root Company.

Caucasian	PRICES	Italian	
1 Tested .....	\$3 00	1 Untested....\$1 ; 6, \$5.50 ; 12, \$10	
1 Best Breeding .....	6 00	1 Tested .....	\$1 50
1 Imported .....	7 00	1 Best Breeding..... 5 00	

Send for particulars.

We sell bees in one, two, and three nuclei and full colonies.

Our terms, full cash payment with orders, and earliest orders we supply first.

**A. E. TITOFF, IOAMOSA, CALIFORNIA**  
SAN BERNARDINO COUNTY

## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—To exchange stock of groceries for bees or small homestead. A. E. SHAW, Boscobel, Wis.

**WANTED.**—To exchange ginseng seed for any thing I can use. Make offers. FRANK ERKEL, Le Sueur, Minn.

**WANTED.**—To correspond with parties having bees to sell in carload lots for May delivery. Quote prices and give particulars. H. & W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes. H. E. CROWTHER, No. Kingsville, Ohio.

**WANTED.**—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

**WANTED**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted. A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Old combs or slumgum from solar extractors. Will pay for the amount of wax secured less the cost of time in rendering. None can be used after Feb. 15. THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—The addresses of persons who are in possession of the Texas mink, as I wish to purchase a trio or half dozen. JAS. FENNELL, Shelburne, Ont.

**WANTED.**—To exchange one Spangler corn-planter with guano attachment, for bee-supplies, poultry, or cash. AUGUST WOLBERT, Eldora, Ga.

**WANTED.**—Two-frame 2d-hand honey-extractor. A. C. MEYER, 191 Spring St., Gloversville, N. Y.

**WANTED.**—100 to 200 colonies Italian bees in good eight-frame hives, within shipping distance of Central Kentucky. Give full particulars. C. WEAVER, Brooksville, Fla.

**WANTED.**—To exchange job-printing for queens. YOUNG BROTHERS, Rt. 2, Girard, Pa.

**WANTED.**—About 100 colonies of bees from Maryland or Carolina, located near the water. I. J. STRINGHAM, 105 Park Place, New York.

**WANTED.**—A good second-hand buzz-saw for hive-making. LOUIS BIEDIGER, Lacoste, Texas.

## Help Wanted.

**WANTED.**—Competent bee-keeper. Single man; one that can do farm work also. Employment the year round. State age, and wages desired. W. P. SMITH, Penn, Lowndes Co., Miss.

**WANTED.**—Experienced bee-keeper (married man preferred), one accustomed to large apiaries. We will keep satisfactory employee by the year. Address with age, experience, wages asked, and references. DR. GEO. D. M. TCHELL & CO., Ogden, Utah.

**WANTED.**—Young man to work on farm where bees are kept, celery grown, and market gardening followed. Give references, wages expected, and experience had. MILAN STILL, Winona, Wash.

**WANTED.**—Man to take charge of an apiary of 200 swarms. Live in city and drive or wheel to the yard two miles out. H. C. MILLS, 505 Emerson Ave., Syracuse, N. Y.

**WANTED.**—A temperate and industrious young man to work on farm and help in bee-yards when necessary. State age, and wages desired. W. J. MANLEY, Sandusky, Mich.

**WANTED.**—Young man who wishes to learn the bee-business as assistant four to six months. State age, experience, wages desired, and give reference—all in first letter; no tobacco, etc. THE E. F. ATWATER CO., Box 37, Meridian, Idaho.

**WANTED.**—Last year my students helped to secure a harvest of 60,000 lbs. of honey from 296 colonies, spring count. I can take one or two young men, able-bodied, using neither tobacco nor liquor and of good habits (none other need apply). They must be willing to work right along. I will give board and washing; and if student does well and I do well, will give something more. R. F. HOLTERMANN, Brantford, Ont., Can.

## For Sale.

**FOR SALE.**—Fifty stands of bees; have not time to attend to them. A. WATKINSON, Corning, Cal.

**FOR SALE.**—Learning corn, White Wyandottes, Barred Rocks, Queens. Circular. J. F. MICHAEL, Winchester, Ind.

**FOR SALE.**—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price \$800.

H. F. HAGEN, Denver, Colo., Or The A. I. Root Company, Medina, Ohio.

**FOR SALE.**—150 colonies of bees, 30 in Danz, and balance in Root eight-frame Dovetailed hives, at \$3.50 per colony complete, in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.

W. M. BAILEY & CO., Spartanburg, S. C.

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

**FOR SALE.**—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—Different kinds of cow peas, stock peas, etc. Write for prices. Buy now before they advance.

E. R. MILLER, Hearing, Norfolk Co., Va.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, Paden City, W. Va. (Root's Goods.)

**FOR SALE.**—Eight acres on foothills, 'twixt orange and sage; 105 stands bees, three stories; good bee-house, etc. J. C. HALL CO., 29 Nordina, Redlands, Calif.

**FOR SALE.**—4500 Root's No. 1 polished sections, 4 $\frac{1}{4}$  x 4 $\frac{1}{4}$  x 1 $\frac{1}{4}$ , slotted, for \$18.00. R. S. CHAPIN, 598 Junction Ave., Detroit, Mich.

**FOR SALE.**—My home, apiaries, and best equipment in the State. Will lease bees with complete working outfit, even to living-rooms for apiarist. Four hundred to eight hundred colonies. I furnish supplies. R. C. AIKIN, Loveland, Colorado.

**FOR SALE.**—Three untested Italian queens for \$1.00 after July 1, if ordered new; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

S. F. TREGO, Swedona, Ill.

FOR SALE.—Fifty portico Langstroth hives, \$50; 25 Jumbo hives, 500 Langstroth and Jumbo brood-frames; one honey-extractor, \$5; 50 Doolittle division-board feeders; honey-tanks, Hill devices, etc.

R. C. HUGENTOBLER, Miami, Ohio.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.

N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

FOR SALE.—Surveying and mapping course in the International Correspondence School, Scranton, Pa., for \$45.00, cash with order. A fine chance for a young man.

E. S. HACKER, Ephrata, Pa.

FOR SALE.—Five hundred two-story double-walled hives for comb honey; use Langstroth frame, thick top-bars,  $3\frac{1}{2}$  x 5 or 4x5 sections; almost as light as single-walled hives, at a less price; crated and sold only in lots of five or multiples of five. Will also furnish you with the finest of Carniolan queens; had 20 years' experience; nothing but the best sold. Send orders now—\$1.00 each, two for \$1.75, six for \$4.50 for queens mailed in May and June.

W. W. CRIM, Pekin, Indiana.

J. H. McCargo, Ark.  
L. J. Berg, Wis.  
C. L. Harris, Mass.  
Frank L. Aulick, Ky.  
John L. Emlet, Ohio.  
C. E. Dibble, Wash.  
Geo. W. Copenhaver, Mich.

Sixteenth to twenty-fifth prizes, one Standard Corneil smoker, to

Edward Semmelroth, Mich.  
D. Efsensheat, Ohio.  
L. S. Books, N. Y.  
Vincent J. Haag, N. Y.  
R. H. Baker, Wis.  
P. E. Jones, Ind.  
J. H. Stoneman, Mich.  
C. M. Nichols, Mich.  
Fred W. Allen, N. Y.  
John W. Moyer, N. Y.

#### SECOND GLEANINGS CONTEST.

Twenty-five prizes.—First prize, \$10.00 queen (variety, winner's selection); second prize, \$7.50 queen (variety, winner's selection); third prize, \$5.00 queen (variety, winner's selection); fourth prize, \$3.00 queen (variety, winner's selection); fifth prize, \$2.00 queen (variety, winner's selection); sixth to fifteenth prizes, one cloth-bound A B C; sixteenth to twenty-fifth prizes, one Junior Corneil smoker.

Conditions same as last contest, and will be published later. Contest closes July 1. Any one may enter who makes known his intention to us.

Last contest every contestant that sent in more than one subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

#### ADVANCING PRICES.

Pine lumber has advanced during the last few months to higher prices than it has ever reached; and, in the opinion of lumbermen who understand the outlook, and ought to know, the price will advance still more. The advance already is equivalent to \$6.00 per 1000 feet. Fortunately we are provided with stock on hand, and contracted sufficient to see us through this season. If it were not for this we should have to withdraw the liberal early-order discounts now being made.

Sheet zinc has also advanced a cent a pound within six months, and over two cents in the last year and a half. Tin and lead are also 30 per cent higher than a few months ago. If the present high level is maintained very long or extended very much, we shall be compelled to increase prices on some articles into which these materials enter. We will not change prices during this season if we can avoid it.

#### METAL SPACERS FOR HOFFMAN FRAMES.

We have not shown any thing in GLEANINGS for a long time which has brought us so many inquiries as the metal-spaced Hoffman frames shown in the Jan. 1st issue. We have been hard at work for several weeks on special dies and tools for turning these out rapidly and cheaply, so we could afford to sell them low enough to make them go in large quantities. We have been unfortunate in having two different dies crack in tempering, so we have been delayed in getting the tools into operation so we could say definitely what we could do. We are aiming to furnish the frames with spacers at \$3.00 per 100 in flat. These frames have end-bars  $\frac{3}{8}$  in. thick,  $1\frac{1}{8}$  in. wide. The spacers only, we hope to furnish to fit this size of end-bar at 30 cts. per 100; \$2.50 per 1000. If you desire to use them on frames with a thinner or narrower end-bar it will be necessary to insert a thin piece between the spacer and end-bar to make up for the difference in width. This will be held in place by the same nail that fastens the spacer. Nails are included with spacers. Postage, 20 cts. per 100.

#### MAPLE SYRUP.

We still have about 40 gallons of fine rock-maple syrup, which we offer in cases of six one-gallon cans, at \$1.10 per gallon; ten gallons or more, at \$1.00 per gallon. Order at once if you want to secure the goods.

#### BEESWAX WANTED.

Until further notice we will pay 28 cts. cash, 30 cts. in trade, for average wax delivered here. This is as high a price as we paid any time last year when foundation was selling at 2 cts. a pound more than it is listed at present. Besides, the early-order discount is greater now than at the same time last year.

#### BRITISH BEE JOURNAL.

So many of our subscribers in the United States have wanted prices on the weekly *British Bee Journal* that we now are prepared to furnish it with GLEANINGS one year for only \$2.00. To countries where second-class postage rates do not apply, the price is \$3.00 for both postpaid. To those who prefer the monthly *Bee-keepers' Record* in place of the *British Bee Journal* it can be substituted at the same price.

#### WINNERS IN THE FIRST SUBSCRIPTION CONTEST.

Below will be found a list of winners in our First GLEANINGS Subscription Contest, from September 15 to February 15. We publish this list so that if those not included wish to present claims they may do so before too late. A number sent in subscriptions without stating a desire to compete, and were not counted. After February 15 this contest is considered closed, and on that date books and smokers will be mailed and orders entered for queens to be mailed in the spring.

\$10.00	red-clover queen,	J. P. Berg, Wash.
\$7.50	"	J. S. Yoder, Va.
\$5.00	"	J. H. Thomson, Ont.
\$3.00	"	T. J. Dugdale, N. Y.
\$2.00	"	S. E. Johns, Penn.

Sixth to fifteenth prize, half-leather A B C to Oscar Anderson, Wis.

Irving Long, Mo.

H. Mansperger, Mo.

#### Convention Notices.

The Washington State Bee-keepers' Association will hold its annual meeting in the old M. E. church on North Third St., North Yakima, Feb. 14, 15, and 16. An interesting program is assured. One feature will be the illustrated lectures on bee-keeping. Get all bee-keepers from different parts of the State to attend, as many subjects of vital interest will be discussed.

No. Yakima, Jan. 15.

VIRGIL SIRES, Sec.

# Pure Caucasian Queens

## Guaranteed Mated to Pure Caucasian Drones, \$3

Gentlest bees in world; no bee-veil or smoke required to handle them; good honey-gatherers; my strain distinctly marked; easily distinguished.

Every queen I send out is select. Shall sell only a small percentage of all I raise, as I shall destroy all queens that do not come up to the highest points of excellence.

### NO MISMATED OR UNTESTED QUEENS FOR SALE

Only best stock, guaranteed purely mated. I have as breeders, queens direct from the Caucasus, Russia : : : : : : : Remit by postoffice money-order with order, as cash orders will be filled first; others in rotation.

D. EVERETT LYON, Ph. D. 12 Yrs. Experience with Bees MATAWAN, NEW JERSEY

## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## All the year round.

We are prepared to supply queens any month in the year. We have secured the services of one of the best breeders, and use select imported stock. Prices as follows:

Untested Italians .....	66
Tested .....	\$1.00
Select tested .....	1.50
Extra select.....	2.50

We do not guarantee impossibilities, such as sending queens to cold climates in winter, but for any reasonable distance and time we guarantee safe arrival. Write for further particulars.

**A. COMES CASSERES,**  
**15 Orange St., Kingston, Jamaica.**

## ITALIAN QUEENS AND GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hineston, La.**

**PURE ITALIAN QUEENS.**—From red-clover and five-banded breeders. Untested, 75c; select untested, \$1.00; tested queens, \$1.50; select tested, \$2.50. Safe arrival guaranteed.

**H. M. PARKER, JR., James Island, S. C.**

**PLEASE TAKE NOTICE** that we have purchased the Atchley steam bee-hive factory, and are now putting in up-to-date machinery for making dovetailed bee-hives and supplies. We earnestly solicit a share of your patronage. We quote prices on two hives for comparison: One two-story eight-frame hive in the flat for extracted honey, complete ready to nail, \$1.25; one story and-a-half hive in the flat with sections, complete ready for comb honey, \$1.25; self-spacing Hoffman frames in the flat, \$15.00 per 1000. Remember these are standard goods and Dovetailed hives. Get prices on large lots. Dittmer's foundation at Dittmer's prices. We are headquarters in the South for bees and queens—untested, \$1.00 each; \$9.00 per dozen; tested, \$1.50. Full colonies nuclei and queens in large lots our specialty. Send for catalog. **THE BEE AND HONEY CO.,**  
Will Atchley, Prop., Beeville, Bee Co., Texas.

## CAUCASIAN QUEENS!

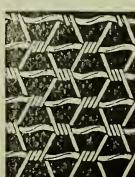
Caucasian bees are the gentlest of the PROFITABLE HONEY-PRODUCERS. A trial will convince you. Have your queens, both Caucasians and Italians, bred and mated to order, and then you will have what you want. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**  
**Box 18, Beeville Bee Co., Tex**



## FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

**COILED SPRING FENCE CO.**

**Box 101 WINCHESTER, INDIANA.**

# Save Money on Your BEE-SUPPLIES

I ship several cars of the celebrated Root goods to Kansas City

every year, and save hundreds of dollars for our customers in Kansas, Nebraska, Missouri, etc. Let me save you a few dollars on your goods. Write me at Main Office. Catalog, information, etc., sent free.

Carl F. Buck

Augusta . . . Kansas

## At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West. . . .

ADDRESS

**Blanke & Hauk  
Supply Co.**  
202-204 Market Street  
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

**Dairymen's  
and Poultrymen's  
Supplies**

Low freight. . . . Prompt shipments.  
Factory prices. . . Write for catalog.

**Send Us Your Order**

Before you Buy your next  
Bee-supplies Be sure to

send for our new revised catalog. We are the oldest bee-supply house in the West. We understand the needs of both the veteran and the novice in bee-keeping. Our prices are as low as any one's for the same quality. Discount for early orders. We give you quick service and low freight rates. . . . .

## Italian Queens and Nuclei

a specialty. Send for our special queen list "B" for particulars.



**John Nebel & Son Supply Co.**

High Hill, Montgomery Co., Missouri

## THE COLORADO BEE-KEEPER

THE man we are interested in, whether he has one swarm or five hundred. If you are that man, we are talking to you.

The goods we sell were made in Ohio. You live in Colorado.

The point is this:

We cut out the distance, and bring your goods home to you—and they are Root's Goods too.

Just now we are interested in getting our catalog into the hands of every bee-keeper. It is YOURS for the asking.

Your order to us, small or large, means prompt service and Root Goods.

**The L. A. Watkins  
Merchandise Company**  
Denver, Colorado

# SUPREME EXCELLENCE

is only another name for OUR Make of  
**BEE-KEEPERS' SUPPLIES**

Have you ever used them? If not, give us a trial order this spring. We will do our best to please you. Our prices are as low as any; and if our goods aren't as we claim you'll not have to pay for them.

## We Allow Usual Discount for Early Orders

February, 4 per cent; in March, 2 per cent. Our large illustrated price list and copy American Bee-keeper free.

**The W. T. Falconer Manufacturing Co.**  
Jamestown, New York

 The *American Bee-keeper* for January contains excellent photographic illustrations of Artificial Honey-Comb made over 30 years ago in New England, together with illustrations of the implements used in making, and a portrait of the inventor.

Dadant's  
**Foundation**  
It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

~~~~~  
**Bee-supplies of All Kinds**  
~~~~~

Beeswax wanted at all times.  
Send for Our 1906 Catalog.

~~~~~  
**Dadant & Sons, Hamilton, Ill.**

**Root Goods**  
~~~~~  
**for the West**  
~~~~~

New catalog now ready to mail. Write to-day.  
Remember I have been in the business over 20 years, and carry the largest stock in the West. Many thousands of dollars' worth of goods now on hand ready for distribution. Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at ROOT FACTORY PRICES and DISCOUNTS, My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

~~~~~  
**Jos. Nysewander, Des Moines, Iowa**  
565, 567 West Seventh Street